APPENDIX A

Screening of Potential Covered Species

Appendix A Screening of Potential Covered Species

This appendix describes the screening process undertaken to determine the species identified as Covered Species in this habitat conservation plan (HCP). As discussed in detail below, Southern California Edison (SCE) compiled a comprehensive list of special-status species that occur or may occur within the HCP Planning Area. Information was gathered on each special-status species' population trends, distribution, threats, and conservation and management efforts. Four criteria were then used to evaluate each identified special-status species to determine whether it would be included in the HCP and incidental take permit (ITP) as a Covered Species. Those criteria consist of the species' potential for Federal listing, occurrence within the HCP Planning Area, potential to be affected, and sufficiency of information. Additional information is presented below about the compilation of the preliminary list of special-status species, the species screening process, and the determination of the species to be included as Covered Species.

Special-status species are defined as species that fit into any of the following categories:

- Listed as threatened or endangered under the Federal Endangered Species Act (ESA)
- Proposed or candidates for listing under the ESA
- Listed as threatened or endangered under the California Endangered Species Act (CESA)
- Candidates for listing under the CESA
- Fully protected species under the California Fish and Game Code
- California species of concern
- Plants listed as rare under the California Native Plant Protection Act
- Plants included in the California Native Plant Society (CNPS) and California Department of Fish and Wildlife's (CDFW's) California Rare Plant Rank (CRPR) (formerly the CNPS List) as 1A, 1B, or 2

A total of 39 special-status species (23 animals and 16 plants) were identified as being present, or having the potential to be present, in the HCP Planning Area during implementation of the HCP. This list was developed by conducting protocol and focused surveys, as described below, and by reviewing the following sources:

- California Natural Diversity Database (CNDDB) (DFG, 2010, 2011a, and 2012; CDFW, 2013a)
- CNPS (2010 and 2011) Inventory of Rare and Endangered Vascular Plants of California
- California Department of Fish and Game and CDFW lists of Special Animals and Special Plants (DFG, 2011b; CDFW, 2013b)
- A species list obtained from the U.S. Fish and Wildlife Service (USFWS) website for U.S. Geological Survey (USGS) 7.5-minute quadrangles that include or are adjacent to those in the HCP Planning Area: Tulare, Visalia, Monson, Orange Cove South, Stokes Mountain, Aukland, Shadequarter Mountain, Kaweah, Chickencoop Canyon, Rocky Hill, Lindsay, Cairns Corner, Exeter, Ivanhoe, and Woodlake (USFWS, 2013)

Protocol surveys and inventories of the HCP Planning Area were conducted for all of the following:

- Sensitive vegetation communities
- Wetlands
- Sixteen special-status plant species
- Federally listed vernal pool fairy and tadpole shrimp species (*Branchinecta lynchi* and *Lepidurus packardi,* respectively)
- Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*)
- California tiger salamander (*Ambystoma californiense*)
- The unlisted western spadefoot toad (*Scaphiopus hammondii*)
- Unlisted raptor species (including Swainson's hawk [*Buteo swainsoni*] and burrowing owl [*Athene cunicularia*])
- Unlisted riparian bird species
- The Federally listed San Joaquin kit fox (*Vulpes macrotis mutica*)
- The unlisted American badger (*Taxidea taxus*)
- Unlisted bat species

The methods to evaluate the presence/absence and distribution of these species and survey results for the HCP Planning Area are described in reports by CPUC (2009) and Quad Knopf (2010; 2011a–2011e; 2012a–2012g; and 2013).

As noted above, based on the results of these surveys and review of the other identified data sources, 39 special-status species were identified. The following four criteria were used to evaluate these species. All four of these criteria had to be met for the species to be selected as a Covered Species.

1. **Potential for Listing**. The species is listed threatened or endangered under ESA or is reasonably likely to be listed by the Federal government during the 30-year implementation term of the HCP. Current status as State-listed threatened or endangered or CRPR 1B.1 (seriously endangered in California and elsewhere) and/or inclusion of an unlisted species in a USFWS recovery plan was considered an indication that the Federal government may list the species as threatened or endangered during implementation of the HCP.

2. **Occurrence in the HCP Planning Area**. The species is known to occur, or during the ITP term is likely to occur, in the HCP Planning Area because (1) the HCP Planning Area is within the species' range and (2) the HCP Planning Area contains habitat suitable for the species, or because the HCP Planning Area contains designated critical habitat for the species and the primary constituent elements of that critical habitat are present.

3. **Potential to Be Affected.** The species is likely to be adversely affected (i.e., harassed or harmed) by the HCP's Covered Activities and these effects are reasonably certain to not be discountable and insignificant.

4. **Sufficient Information**. Sufficient scientific information and data are available regarding the species' ecological requirements to determine the likely impacts of Covered Activities on the species and formulate necessary measures (including compensatory mitigation) to conserve the species.

Table A-1 identifies each of these 39 special-status species and evaluates whether each special-status species meets the criteria for a species to be a Covered Species. Thirteen special-status species met all four of these criteria and are included as Covered Species in the HCP. SCE will request an ITP for these species.

California condor and golden eagle were included in the evaluation of whether species should be covered. Details of the evaluation of these two species are provided in Attachments 2 and 3 (Bloom and Kiff, 2013a and 2013b).

Attachments

1 USFWS species list for USGS 7.5-minute quadrangles in or adjacent to the HCP Planning Area (USFWS, 2013)
2 Evaluation of Power Line Threats to California Condor (Bloom and Kiff, 2013a)
3 Evaluation of Power Line Threats to Golden Eagle and Bald Eagle (Bloom and Kiff, 2013b)

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CNPS. *See* California Native Plant Society.

CPUC. *See* California Public Utilities Commission.

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Table A-1. Analysis of Potential Covered Species for the Cross Valley Line Habitat Conservation Plan

Common Name *Scientific Name*	Species Status[a]		Evaluation Criteria					Supporting Description
	Federal	State	Listing Potential[b]	Occurrence in HCP Planning Area[c]	Potential to be Affected[d]	Sufficient Information[e]	Proposed for Coverage[f]	
Invertebrate Species								
Vernal pool fairy shrimp *Branchinecta lynchi*	T	–	+	+	+	+	Yes	Vernal pool fairy shrimp is Federally listed. Wet-season sampling found vernal pool fairy shrimp in the HCP Planning Area east of the Friant-Kern Canal. Covered Activities could affect this occupied habitat. Existing information is sufficient for conservation planning for this species.
Vernal pool tadpole shrimp *Lepidurus packardi*	E	–	+	+	+	+	Yes	Vernal pool tadpole shrimp is Federally listed. The HCP Planning Area is in the range of the vernal pool tadpole shrimp, which has previously been observed at the nearby Stone Corral Ecological Preserve, which is within 2 miles of the HCP Planning Area. Although surveys conducted for the Cross Valley Line did not find the species within the HCP Planning Area, some of these surveys were conducted for only a single year because of unsuitable survey conditions; suitable habitat is present. Covered Activities could adversely affect this suitable habitat. Existing information is sufficient for conservation planning for this species.
Valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	T	–	+	+	+	+	Yes	Valley elderberry longhorn beetle is Federally listed. Although no valley elderberry longhorn beetles have been found within the HCP Planning Area, elderberry (the species' host plant) is present at the St. John's River, Cottonwood Creek, and at rock outcrops (which are inclusions within some grasslands of the HCP Planning Area). Covered Activities would adversely affect elderberry shrubs in certain locations within the HCP Planning Area. Existing information is sufficient for conservation planning for this species.

Table A-1. Continued

Common Name *Scientific Name*	Species Status[a]		Evaluation Criteria					Supporting Description
	Federal	State	Listing Potential[b]	Occurrence in HCP Planning Area[c]	Potential to be Affected[d]	Sufficient Information[e]	Proposed for Coverage[f]	
Amphibian Species								
California tiger salamander *Ambystoma californiense* (=*A. tigrinum c.*)	T	T	+	+	+	+	Yes	California tiger salamander is Federally listed. Larval surveys of suitable aquatic habitat in the HCP Planning Area found California tiger salamander east of the Friant-Kern Canal. Covered Activities would adversely affect upland habitat and breeding ponds for this species east of the Friant-Kern Canal. Existing information is sufficient for conservation planning for this species.
Western spadefoot toad *Scaphiopus hammondii*	–	SSC	+	+	+	+	Yes	Although this species was removed from the Federal list of species that are candidates for listing in 1996, the Federal government may list western spadefoot toad as threatened or endangered during HCP implementation: This unlisted species was included in the *Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon* (USFWS, 2005). Surveys conducted for the Cross Valley Line found western spadefoot toad in a number of wetlands and puddles in the HCP Planning Area. Covered Activities may adversely affect breeding sites and upland aestivation habitat. Existing information is sufficient for conservation planning for this species.
Foothill yellow-legged frog *Rana boylii*	–	SSC	–	–	–	+	No	The Federal government is not expected to list foothill yellow-legged frog as threatened or endangered during HCP implementation. The species was not observed during surveys of the HCP Planning Area, it was not previously documented in the HCP Planning Area, and suitable habitat does not exist in the HCP Planning Area. Covered Activities are not expected to affect this species. Existing information is sufficient for conservation planning for this species.

Table A-1. Continued

Common Name *Scientific Name*	Species Status[a]		Evaluation Criteria					Supporting Description
	Federal	State	Listing Potential[b]	Occurrence in HCP Planning Area[c]	Potential to be Affected[d]	Sufficient Information[e]	Proposed for Coverage[f]	
Reptile Species								
Western pond turtle *Emys marmorata*	–	SSC	–	+	–	+	No	The Federal government reviewed this species for listing in 1993, and determined that listing was not warranted at that time. The Federal government is not expected to list western pond turtle as threatened or endangered during HCP implementation. Surveys conducted for the Cross Valley Line did not find western pond turtle, but it has been historically observed in the HCP Planning Area at the St. John's River and at Cottonwood Creek. Suitable habitat for this species is restricted to the St. John's River and Cottonwood Creek. Covered Activities are not expected to affect this species. Existing information is sufficient for conservation planning for this species.
Bird Species								
Great blue heron *Ardea herodias* (rookery)	–	–	–	+	+	+	No	The Federal government is not expected to list great blue heron as threatened or endangered during HCP implementation. Bird surveys associated with waterbird collision studies recorded great blue heron in the HCP Planning Area. Covered Activities may adversely affect this species. Existing information is sufficient for conservation planning for this species.
California condor *Gymnogyps californicus*	E	E, FP	+	–	–	+	No	See Attachment 2 for a description of the evaluation of this species.
Golden eagle *Aquila chrysaetos*	P	FP	+	–	–	+	No	See Attachment 3 for a description of the evaluation of this species.

Table A-1. Continued

Common Name *Scientific Name*	Species Status[a]		Evaluation Criteria					Supporting Description
	Federal	State	Listing Potential[b]	Occurrence in HCP Planning Area[c]	Potential to be Affected[d]	Sufficient Information[e]	Proposed for Coverage[f]	
Swainson's hawk *Buteo swainsoni*	–	T	+	+	–	+	No	Swainson's hawk is listed as threatened by CDFW, which indicates that the Federal government may list this species as threatened or endangered during HCP implementation. Although surveys conducted for 2 years did not observe any nesting Swainson's hawks within 4 miles of the HCP Planning Area, the HCP Planning Area is within the range of Swainson's hawk and contains suitable foraging and nesting habitat. Thus, there is a moderate likelihood of the species occurring within the HCP Planning Area during HCP implementation. The *Nesting Bird Management Plan* for the Cross Valley Line (SCE, 2013; see Appendix E of the HCP) includes measures to conduct preconstruction surveys for nests within one-half mile of proposed activities, coordinate with CDFW, establish buffers around active nests, and monitor active nests, With implementation of measures in the *Nesting Bird Management Plan*, Covered Activities during the 30-year term of the ITP are not anticipated to adversely affect Swainson's hawk. Effects on active nests are unlikely because implementing the measures in the *Nesting Bird Management Plan* (SCE, 2012) would avoid harm that affects current or later survival or reproduction of a bird, and harassment to the extent that it disrupts normal breeding, feeding, or sheltering behavioral patterns Effects on foraging habitat would not be sufficiently large to result in biological effects (i.e., harm that affects current or later survival or reproduction of a bird, or harassment to the extent that it disrupts normal breeding, feeding, or sheltering behavioral patterns). Existing information is sufficient for conservation planning for this species.

Table A-1. Continued

Common Name *Scientific Name*	Species Status[a]		Evaluation Criteria				Proposed for Coverage[f]	Supporting Description
	Federal	State	Listing Potential[b]	Occurrence in HCP Planning Area[c]	Potential to be Affected[d]	Sufficient Information[e]		
Western yellow-billed cuckoo *Coccyzus americanus occidentalis*	C, BCC	E	+	–	+	+	No	Western yellow-billed cuckoo is State listed and has been proposed for Federal listing. The HCP Planning Area is inside the species' historical range, but is outside of the species' current range: the nearest extant nesting-record of this yellow-billed cuckoo is approximately 27 miles north of the HCP Planning Area. The riparian habitat at the St. John's River crossing and the Cottonwood Creek crossing (in the southern and eastern parts of the HCP Planning Area, respectively) is too narrow to provide suitable nesting habitat, but it might provide suitable foraging and movement habitat if the species were present (Gaines and Laymon, 1984). Protocol surveys of the HCP Planning Area conducted for the Cross Valley Line during 2011–2012 did not find the species. Covered Activities could affect potentially suitable foraging and movement habitat for this species during HCP implementation. Existing information is sufficient for conservation planning for this species.
Burrowing owl *Athene cunicularia*	BCC	SSC	+	+	+	+	Yes	The Federal government could list western burrowing owl as threatened or endangered during HCP implementation. Surveys found burrowing owl using burrows within the HCP Planning Area. Covered Activities could affect this species during HCP implementation; measures in the *Nesting Bird Management Plan* for the Cross Valley Line (SCE, 2013) may not be able to avoid disruption of nesting in some cases. Existing information is sufficient for conservation planning for this species.
Little willow flycatcher *Empidonax traillii brewsteri*	–	E	+	+	+	+	Yes	Little willow flycatcher is listed as threatened by CDFW, which indicates that the Federal government may list this species as threatened or endangered during HCP implementation. In the St. John's River area, protocol surveys of the HCP Planning Area during 2011–2012 documented the presence of a willow flycatcher species, but not of nesting. These surveys did not document the species in suitable habitat at Cottonwood Creek. Covered Activities could affect the species during HCP implementation. Existing information is sufficient for conservation planning for this species.

Table A-1. Continued

Common Name *Scientific Name*	Species Status[a]		Evaluation Criteria					Supporting Description
	Federal	State	Listing Potential[b]	Occurrence in HCP Planning Area[c]	Potential to be Affected[d]	Sufficient Information[e]	Proposed for Coverage[f]	
Southwestern willow flycatcher *Empidonax trailli extimus*	E	E	+	+	+	+	Yes	Southwestern willow flycatcher is Federally listed. In the St. John's River area, protocol surveys of the HCP Planning Area during 2011–2012 documented the presence of a willow flycatcher species, but not of nesting. These surveys did not document the species in suitable habitat at Cottonwood Creek. Covered Activities could adversely affect southwestern willow flycatcher during HCP implementation. Existing information is sufficient for conservation planning for this species.
Least Bell's vireo *Empidonax traillii*	E	E	+	+	+	+	Yes	Least Bell's vireo is Federally listed. A recovery plan was prepared in 1998, the last 5-year review was completed in 2006, and an action plan was completed in 2009. The nearest nesting record of this species is approximately 55 miles east of the HCP Planning Area, and protocol surveys of the HCP Planning Area did not find the species. However, the geographical range of this species has been expanding in the San Joaquin Valley. Covered Activities could affect potentially suitable nesting habitat for this species during HCP implementation. Existing information is sufficient for conservation planning for this species.
Mammal Species								
Pallid bat *Antrozous pallidus*	–	SSC	–	+	+	–	No	The Federal government is not expected to list pallid bat as threatened or endangered during HCP implementation. During surveys conducted for the Cross Valley Line, surveyors detected this species in the HCP Planning Area. Covered Activities could adversely affect suitable roosting areas. Existing information is sufficient for conservation planning for this species.
Townsend's big-eared bat *Corynorhinus townsendii*	–	SSC	–	+	+	+	No	The Federal government is not expected to list Townsend's big-eared bat as threatened or endangered during HCP implementation. During surveys conducted for the Cross Valley Line, surveyors detected this species in the HCP Planning Area. Covered Activities could adversely affect suitable roosting areas. Existing information is sufficient for conservation planning for this species.

Table A-1. Continued

Common Name *Scientific Name*	Species Status[a]		Evaluation Criteria				Proposed for Coverage[f]	Supporting Description
	Federal	State	Listing Potential[b]	Occurrence in HCP Planning Area[c]	Potential to be Affected[d]	Sufficient Information[e]		
Spotted bat *Euderma maculatum*	–	SSC	–	+	+	+	No	The Federal government is not expected to list spotted bat as threatened or endangered during HCP implementation. During surveys conducted for the Cross Valley Line, surveyors detected this species in the HCP Planning Area. Covered Activities could adversely affect suitable roosting areas. Existing information is sufficient for conservation planning for this species.
Western red bat *Lasiurus blossevillii*	–	SSC	–	+	+	+	No	The Federal government is not expected to list western red bat as threatened or endangered during HCP implementation. During surveys conducted for the Cross Valley Line, surveyors detected this species in the HCP Planning Area. Covered Activities could adversely affect suitable roosting areas. Existing information is sufficient for conservation planning for this species.
Western mastiff bat *Eumops perotis californicus*	–	SSC	–	+	+	+	No	The Federal government is not expected to list western mastiff bat as threatened or endangered during HCP implementation. During surveys conducted for the Cross Valley Line, surveyors detected this species in the HCP Planning Area. Covered Activities could adversely affect suitable roosting areas. Existing information is sufficient for conservation planning for this species.
San Joaquin kit fox *Vulpes macrotis mutica*	E	T	+	+	+	+	Yes	San Joaquin kit fox is Federally listed. Although protocol surveys conducted for the Cross Valley Line did not detect San Joaquin kit fox, the HCP Planning Area is within the species' geographic range. San Joaquin kit fox (which is wide ranging and has a large home range) could forage or den in the HCP Planning Area. The 1998 Recovery Plan and 2010 5-year update both identified a north-south movement corridor in the foothill area in the eastern part of the HCP Planning Area. Covered Activities could adversely affect San Joaquin kit fox. Existing information is sufficient for conservation planning for this species.

Table A-1. Continued

Common Name *Scientific Name*	Species Status[a]		Evaluation Criteria					Supporting Description
	Federal	State	Listing Potential[b]	Occurrence in HCP Planning Area[c]	Potential to be Affected[d]	Sufficient Information[e]	Proposed for Coverage[f]	
American badger *Taxidea taxus*	–	SSC	–	+	+	+	No	The American badger is not likely to become listed during HCP implementation. Although the species was not documented by surveyors during surveys conducted for the Cross Valley Line, the HCP Planning Area is within the range of the badger and there are records of its occurrence near the HCP Planning Area. Covered Activities could affect this species during HCP implementation. Existing information is sufficient for conservation planning for this species.
Plant Species								
Earlimart orache *Atriplex cordulata* var. *erecticaulis*	–	CRPR 1B.2	–	–	–	–	No	The Federal government is not likely to list Earlimart orache as threatened or endangered during HCP implementation. The Federal government reviewed *A. cordulata* for listing in 1993, and determined that listing was not warranted at that time. Two years of protocol surveys did not find this species in the HCP Planning Area, and no suitable habitat is present in the HCP Planning Area (Quad Knopf, 2011a, 2011b, and 2013). The closest known occurrence is approximately one-half mile from the HCP Planning Area. Thus, the species has a low likelihood of occurrence in the HCP Planning Area. Because the HCP Planning Area does not contain suitable habitat, Covered Activities would not affect this species. Information regarding suitable habitat for this species is limited and is not sufficient for all aspects of conservation planning.
Brittlescale *Atriplex depressa*	–	CRPR 1B.2	–	–	–	+	No	The Federal government is not likely to list brittlescale as threatened or endangered during HCP implementation. Two years of protocol surveys did not find this species in the HCP Planning Area, and no suitable habitat is present (Quad Knopf, 2011a, 2011b, and 2013). The closest known occurrence is 1.9 to 3.9 miles from the HCP Planning Area (its location has an accuracy of ±1 mile). Thus, the species has a low likelihood of occurrence in the HCP Planning Area. Because the HCP Planning Area does not contain suitable habitat, Covered Activities would not affect this species. Existing information is sufficient for conservation planning for this species.

Table A-1. Continued

Common Name *Scientific Name*	Species Status[a]		Evaluation Criteria				Proposed for Coverage[f]	Supporting Description
	Federal	State	Listing Potential[b]	Occurrence in HCP Planning Area[c]	Potential to be Affected[d]	Sufficient Information[e]		
Lesser saltscale *Atriplex minuscula*	–	CRPR 1B.1	+	–	–	–	No	Lesser saltscale is considered seriously endangered by CDFW (CRPR 1B.1), which indicates that the Federal government may list this species as threatened or endangered during HCP implementation. Two years of protocol surveys did not find this species in the HCP Planning Area, and no suitable habitat is present in the HCP Planning Area (Quad Knopf, 2011a, 2011b, and 2013). The closest known occurrence is approximately 0.42 mile from the HCP Planning Area. Thus, the species has a low likelihood of occurrence in the HCP Planning Area. Because the HCP Planning Area does not contain suitable habitat, Covered Activities would not affect this species. Existing information is sufficient for conservation planning for this species.
Vernal pool smallscale *Atriplex persistens*	–	CRPR 1B.2	–	–	+	+	No	The Federal government is not likely to list vernal pool smallscale as threatened or endangered during HCP implementation. Two years of protocol surveys did not find this species in the HCP Planning Area, and vernal pools in the HCP Planning Area may not provide suitable habitat because they are nonalkaline (Quad Knopf, 2011a, 2011b, and 2013). The closest known occurrence is approximately 1 mile from the HCP Planning Area. Thus, the species has a low likelihood of occurrence in the HCP Planning Area. Covered Activities would affect vernal pools that may provide suitable habitat for this species. Existing information is sufficient for conservation planning for this species.
Subtle orache *Atriplex subtilis*	–	CRPR 1B.2	–	–	–	+	No	The Federal government is not likely to list subtle orache as threatened or endangered during HCP implementation. Two years of protocol surveys did not find this species in the HCP Planning Area, and no suitable habitat exists in the HCP Planning Area (Quad Knopf, 2011a, 2011b, and 2013). The closest known historical occurrence is 8.8 to 10.8 miles from the HCP Planning Area (its location has an accuracy of ±1 mile). The closest known extant occurrence is approximately 10.4 miles from the HCP Planning Area. Thus, the species has a low likelihood of occurrence in the HCP Planning Area. Because the HCP Planning Area does not contain suitable habitat, Covered Activities would not affect this species. Existing information is sufficient for

Table A-1. Continued

Common Name *Scientific Name*	Species Status[a]		Evaluation Criteria					Supporting Description
	Federal	State	Listing Potential[b]	Occurrence in HCP Planning Area[c]	Potential to be Affected[d]	Sufficient Information[e]	Proposed for Coverage[f]	
								conservation planning for this species.
Kaweah brodiaea *Brodiaea insignis*	–	E, CRPR 1B.2	+	–	+	+	No	The Federal government twice reviewed this species for Federal listing, in 1985 and 1993, and determined that listing was not warranted; however, Kaweah brodiaea is State listed as endangered, which indicates that the Federal government may list this species as threatened or endangered during HCP implementation. Surveyors did not find the plant during 2 years of protocol surveys conducted for the Cross Valley Line, and suitable habitat was not observed within the HCP Planning Area. The closest known occurrence is approximately 2.4 miles from the HCP Planning Area. Thus, the species has a low likelihood of occurrence in the HCP Planning Area. Covered Activities would adversely affect grassland land cover that may provide suitable habitat for this species. Existing information regarding its habitat requirements is not sufficient to eliminate this possibility.
California jewelflower *Caulanthus californicus*	E	E, CRPR 1B.1	+	–	+	+	No	California jewelflower is Federally listed, has a recovery plan completed in 1998, and had its most recent 5-year review completed in 2007. The historical range of this species included the floor of the San Joaquin Valley in Tulare County, but no populations are known from the Sierra Nevada foothills north of Bakersfield. Although the HCP Planning Area may be within the historical range of California jewelflower, 2 years of protocol surveys did not find this species in the HCP Planning Area (Quad Knopf, 2011a and 2011b). The closest known historical occurrence is 7.2 to 9.2 miles from the HCP Planning Area (its location has an accuracy of ±1 mile). The closest known extant occurrence is approximately 54.4 miles from the HCP Planning Area. Thus, the species has a low likelihood of occurrence in the HCP Planning Area. Covered Activities would affect grassland land cover that may provide suitable habitat for this species. Existing information regarding this species' habitat requirements is not sufficient to eliminate this possibility.

Table A-1. Continued

Common Name *Scientific Name*	Species Status[a]		Evaluation Criteria				Proposed for Coverage[f]	Supporting Description
	Federal	State	Listing Potential[b]	Occurrence in HCP Planning Area[c]	Potential to be Affected[d]	Sufficient Information[e]		
Hoover's spurge *Chamaesyce hooveri*	T	E, CRPR 1B.2	+	+	+	+	Yes	Hoover's spurge is Federally listed. Although suitable habitat is present, surveyors found no plants during 2 years of protocol surveys conducted for the Cross Valley Line. The eastern portion of the HCP Planning Area east of the Friant-Kern Canal contains designated critical habitat for Hoover's spurge. The closest known occurrence is approximately 0.4 mile from the HCP Planning Area. Covered Activities would adversely affect primary constituent elements of designated critical habitat. Existing information is sufficient for conservation planning for this species.
Recurved larkspur *Delphinium recurvatum*	–	CRPR 1B.2	–	–	+	+	No	The Federal government is not likely to list recurved larkspur during HCP implementation. Two years of protocol surveys did not find this species in the HCP Planning Area, and very little suitable habit exists in the HCP Planning Area (Quad Knopf, 2011b). The closest known occurrence is approximately one-half mile from the HCP Planning Area. Thus, the species has a low likelihood of occurrence in the HCP Planning Area. Covered Activities could affect vegetation potentially providing suitable habitat for recurved larkspur. Existing information is sufficient for conservation planning for this species.
Spiny-sepaled button-celery *Eryngium spinosepalum*	–	CRPR 1B.2	+	+	+	+	Yes	Because this unlisted species was included in the *Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon* (USFWS, 2005), the Federal government may list spiny-sepaled button-celery as threatened or endangered during HCP implementation. Surveyors observed spiny-sepaled button celery during protocol surveys conducted for the Cross Valley Line. Covered Activities could affect this occupied habitat. Existing information is sufficient for conservation planning for this species.

Table A-1. Continued

Common Name *Scientific Name*	Species Status[a]		Evaluation Criteria				Proposed for Coverage[f]	Supporting Description
	Federal	State	Listing Potential[b]	Occurrence in HCP Planning Area[c]	Potential to be Affected[d]	Sufficient Information[e]		
Striped adobe lily *Fritillaria striata*	–	T, CRPR 1B.1	+	–	+	+	No	Striped adobe lily is listed as threatened by CDFW, which indicates that it may become Federally listed during HCP implementation. Clay soils associated with the species exist at Colvin Mountain, but surveyors did not find the plant during 2 years of protocol surveys conducted for the Cross Valley Line; therefore, suitable habitat may not exist within the HCP Planning Area. The closest known occurrence is 9.7 to 19.7 miles from the HCP Planning Area (its location has an accuracy of ±5 miles). Thus, the species has a low likelihood of occurrence in the HCP Planning Area. However, Covered Activities would affect grassland that may provide suitable habitat. Existing information is sufficient for conservation planning for this species.
California satintail *Imperata brevifolia*	–	CRPR 2.1	–	–	–	–	No	The Federal government is not likely to list California satintail as threatened or endangered during HCP implementation. Two years of protocol surveys did not find this species in the HCP Planning Area. The closest known occurrence is 1.9 to 3.9 miles from the HCP Planning Area (its location has an accuracy of ±1 mile). Thus, the species has a low likelihood of occurrence in the HCP Planning Area. However, Covered Activities would affect riparian vegetation that may provide suitable habitat for the species at the St. John's River. Existing information is not sufficient to determine whether this vegetation is suitable habitat.
Calico monkeyflower *Mimulus pictus*	–	CRPR 1B.2	–	–	–	–	No	The Federal government is not likely to list Calico monkeyflower as threatened or endangered during HCP implementation. Two years of protocol surveys did not find this species in the HCP Planning Area, and suitable habitat is restricted to rock outcrops and small areas of oak woodland east of the Friant-Kern Canal. The closest known occurrence is 9–11 miles from the HCP Planning Area (its location has an accuracy of ±1 mile). Thus, the species has a low likelihood of occurrence in the HCP Planning Area. Covered Activities are unlikely to affect this species' habitat. Existing information is sufficient for conservation planning for this species.

Table A-1. Continued

Common Name *Scientific Name*	Species Status[a]		Evaluation Criteria				Proposed for Coverage[f]	Supporting Description
	Federal	State	Listing Potential[b]	Occurrence in HCP Planning Area[c]	Potential to be Affected[d]	Sufficient Information[e]		
San Joaquin Valley Orcutt grass *Orcuttia inaequalis*	T	E, CRPR 1B.1	+	+	+	+	Yes	San Joaquin Valley Orcutt grass is Federally listed. Although surveyors did not find San Joaquin Valley Orcutt grass during 2 years of protocol surveys, the eastern portion of the HCP Planning Area contains suitable habitat and designated critical habitat for San Joaquin Valley Orcutt grass. The closest known historical occurrence is approximately 0–2 miles from the HCP Planning Area (its location has an accuracy of ±1 mile). The closest known extant occurrence is 3.8 miles from the HCP Planning Area. Covered Activities would adversely affect primary constituent elements of this critical habitat. Existing information is sufficient for conservation planning for this species.
San Joaquin adobe sunburst *Pseudobahia peirsonii*	T	E, CRPR 1B.1	+	–	+	+	No	San Joaquin adobe sunburst is Federally listed. Surveyors did not find San Joaquin adobe sunburst during 2 years of protocol surveys of the HCP Planning Area. Furthermore, only a small portion of the HCP Planning Area at Colvin Mountain could be suitable habitat for this species (Quad Knopf, 2011b). The closest known occurrence is approximately 4.1 miles from the HCP Planning Area. Thus, the species has a low likelihood of occurrence in the HCP Planning Area. Covered Activities would affect grassland that potentially provides suitable habitat. Existing information is sufficient for conservation planning for this species.
Greene's tuctoria *Tuctoria greenei*	T	E, CRPR 1B.1	+	–	+	+	No	Greene's tuctoria is Federally listed. The HCP Planning Area is within the species' historical range and contains vernal pools that may provide suitable habitat. The closest known historical occurrence is 1.1 to 3.1 miles from the HCP Planning Area (its location has an accuracy of ±1 mile). The closest known extant occurrence of Greene's tuctoria is now approximately 69 miles from the HCP Planning Area. Surveyors did not find Greene's tuctoria during 2 years of protocol surveys. Thus, the species has a low likelihood of occurrence in the HCP Planning Area. Covered Activities would affect vernal pools that may provide suitable habitat. Existing information is sufficient for conservation planning for this species.

Table A-1. Continued

Notes: CDFW = California Department of Fish and Wildlife; CRPR = California Rare Plant Rank (defined more fully below); HCP = habitat conservation plan; ITP = incidental take permit

[a] **Status Explanations**

Federal

E = listed as endangered under the Federal Endangered Species Act (ESA)

T = listed as threatened under the Federal ESA

P = Protected under the Bald and Golden Eagle Protection Act

PE = proposed for Federal listing as endangered under the Federal ESA

PT = proposed for Federal listing as threatened under the Federal ESA

C = species for which USFWS has on file sufficient information on biological vulnerability and threat(s) to support issuance of a proposed rule to list, but issuance of the proposed rule is precluded

BCC = Birds of Conservation Concern

– = no listing

State

E = listed as endangered under the California Endangered Species Act (CESA)

T = listed as threatened under the CESA

FP = fully protected under the California Fish and Game Code

CRPR = California Rare Plant Rank: 1B.1 = seriously endangered in California and elsewhere, 1B.2 = fairly endangered in California and elsewhere, 2.1 = rare, threatened, or endangered in California but more common elsewhere

SSC = species of special concern in California

– = no listing

[b] **Listing Potential**

(–) Species is not currently Federally listed as threatened or endangered, and has low potential of being listed during HCP implementation.

(+) Species is currently Federally listed as threatened or endangered, or has a high potential to be listed as Federally threated or endangered during HCP implementation.

[c] **Occurrence in HCP Planning Area**

(–) The HCP Planning Area lacks suitable habitat or is outside species' range; species is unlikely to occur within the HCP Planning Area.

(+) Suitable habitat is present within at least a portion of the HCP Planning Area; species may occur within the HCP Planning Area.

[d] **Potential to be Affected**

(–) Unlikely to be adversely affected by Covered Activities (i.e., if the species were using the HCP Planning Area, and harm and/or harassment would not be reasonably certain to occur or effects would be insignificant or discountable)

(+) Likely to be adversely affected by Covered Activities (i.e., if the species were using the HCP Planning Area, and harm and/or harassment would be reasonably certain to occur and effects would not be insignificant or discountable)

[e] **Sufficient Information**

(–) Insufficient scientific information and data are available to address the species' ecological requirements, potential impacts, and conservation measures, including compensation options.

(+) Sufficient scientific information and data are available to address the species' ecological requirements, potential impacts, and conservation measures, including compensation options.

Table A-1. Continued

[f] **Proposed for Coverage**

Species are proposed for coverage if all of the following criteria are met:

- The species is Federally listed or is likely to be listed during HCP implementation.
- The species has a moderate to high likelihood of occurring within the HCP Planning Area.
- The species is likely to be adversely affected by Covered Activities.
- Sufficient information is available to determine impacts and the required conservation measures and compensatory mitigation.

(–) Species not proposed for coverage

(+) Species proposed for coverage

Attachment 1

USFWS Species List for U.S. Geological Survey 7.5-Minute Quadrangles in or Adjacent to the HCP Planning Area

Back

Finalize letter

DRAFT

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825

February 20, 2013

Document Number: 130220050702

John Hunter Ph.D.
AECOM
2020 L Street Suite 400
Sacramento, CA 95811
USA

Subject: Species List for San Joaquin Cross Valley Loop Transmission Line Project

Dear: Dr. Hunter

We are sending this official species list in response to your February 20, 2013 request for information about endangered and threatened species. The list covers the California counties and/or U.S. Geological Survey 7½ minute quad or quads you requested.

Our database was developed primarily to assist Federal agencies that are consulting with us. Therefore, our lists include all of the sensitive species that have been found in a certain area *and also ones that may be affected by projects in the area*. For example, a fish may be on the list for a quad if it lives somewhere downstream from that quad. Birds are included even if they only migrate through an area. In other words, we include all of the species we want people to consider when they do something that affects the environment.

Please read Important Information About Your Species List (below). It explains how we made the list and describes your responsibilities under the Endangered Species Act.

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be May 21, 2013.

Please contact us if your project may affect endangered or threatened species or if you have any questions about the attached list or your responsibilities under the Endangered Species Act. See our contacts page.

Endangered Species Division

U.S. Fish & Wildlife Service
Sacramento Fish & Wildlife Office
Federal Endangered and Threatened Species that Occur in or may be Affected by Projects in the Counties and/or U.S.G.S. 7 1/2 Minute Quads you requested

Document Number: 130220050702

Database Last Updated: September 18, 2011

Quad Lists

Listed Species

Invertebrates

Branchinecta conservatio
- Conservancy fairy shrimp (E)

Branchinecta lynchi
- Critical habitat, vernal pool fairy shrimp (X)
- vernal pool fairy shrimp (T)

Desmocerus californicus dimorphus
- valley elderberry longhorn beetle (T)

Lepidurus packardi
- Critical habitat, vernal pool tadpole shrimp (X)
- vernal pool tadpole shrimp (E)

Fish

Hypomesus transpacificus
- delta smelt (T)

Amphibians

Ambystoma californiense
- California tiger salamander, central population (T)
- Critical habitat, CA tiger salamander, central population (X)

Rana draytonii
- California red-legged frog (T)

Reptiles

Gambelia (=Crotaphytus) sila
- blunt-nosed leopard lizard (E)

Thamnophis gigas
- giant garter snake (T)

Birds

Gymnogyps californianus
- California condor (E)
- Critical habitat, California condor (X)

Mammals

Dipodomys nitratoides nitratoides
- Tipton kangaroo rat (E)

Vulpes macrotis mutica

San Joaquin kit fox (E)

Plants

Caulanthus californicus

California jewelflower (E)

Chamaesyce hooveri

Critical habitat, Hoover's spurge (X)

Hoover's spurge (T)

Orcuttia inaequalis

Critical habitat, San Joaquin Valley Orcutt grass (X)

San Joaquin Valley Orcutt grass (T)

Pseudobahia peirsonii

San Joaquin adobe sunburst (T)

Tuctoria greenei

Greene's tuctoria (=Orcutt grass) (E)

Candidate Species

Amphibians

Rana muscosa

mountain yellow-legged frog (C)

Mammals

Martes pennanti

fisher (C)

Quads Containing Listed, Proposed or Candidate Species:

LINDSAY (310A)
CAIRNS CORNER (310B)
TULARE (311A)
KAWEAH (332B)
CHICKENCOOP CANYON (332C)
WOODLAKE (333A)
IVANHOE (333B)
EXETER (333C)
ROCKY HILL (333D)
MONSON (334A)
VISALIA (334D)
SHADEQUARTER MTN. (354C)
STOKES MTN. (355C)
AUCKLAND (355D)
ORANGE COVE SOUTH (356D)

County Lists

No county species lists requested.

Key:

(E) *Endangered* - Listed as being in danger of extinction.

(T) *Threatened* - Listed as likely to become endangered within the foreseeable future.

(P) *Proposed* - Officially proposed in the Federal Register for listing as endangered or threatened.

(NMFS) Species under the Jurisdiction of the National Oceanic & Atmospheric Administration Fisheries Service.

Consult with them directly about these species.

Critical Habitat - Area essential to the conservation of a species.

(PX) *Proposed Critical Habitat* - The species is already listed. Critical habitat is being proposed for it.

(C) *Candidate* - Candidate to become a proposed species.

(V) Vacated by a court order. Not currently in effect. Being reviewed by the Service.

(X) *Critical Habitat* designated for this species

Important Information About Your Species List

How We Make Species Lists

We store information about endangered and threatened species lists by U.S. Geological Survey 7½ minute quads. The United States is divided into these quads, which are about the size of San Francisco.

The animals on your species list are ones that occur within, **or may be affected by** projects within, the quads covered by the list.

- Fish and other aquatic species appear on your list if they are in the same watershed as your quad or if water use in your quad might affect them.
- Amphibians will be on the list for a quad or county if pesticides applied in that area may be carried to their habitat by air currents.
- Birds are shown regardless of whether they are resident or migratory. Relevant birds on the county list should be considered regardless of whether they appear on a quad list.

Plants

Any plants on your list are ones that have actually been observed in the area covered by the list. Plants may exist in an area without ever having been detected there. You can find out what's in the surrounding quads through the California Native Plant Society's online Inventory of Rare and Endangered Plants.

Surveying

Some of the species on your list may not be affected by your project. A trained biologist and/or botanist, familiar with the habitat requirements of the species on your list, should determine whether they or habitats suitable for them may be affected by your project. We recommend that your surveys include any proposed and candidate species on your list. See our Protocol and Recovery Permits pages.

For plant surveys, we recommend using the Guidelines for Conducting and Reporting Botanical Inventories. The results of your surveys should be published in any environmental documents prepared for your project.

Your Responsibilities Under the Endangered Species Act

All animals identified as listed above are fully protected under the Endangered Species Act of 1973, as amended. Section 9 of the Act and its implementing regulations prohibit the take of a federally listed wildlife species. Take is defined by the Act as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect" any such animal.

> Take may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or shelter (50 CFR §17.3).

Take incidental to an otherwise lawful activity may be authorized by one of two

procedures:

- If a Federal agency is involved with the permitting, funding, or carrying out of a project that may result in take, then that agency must engage in a formal consultation with the Service.

  During formal consultation, the Federal agency, the applicant and the Service work together to avoid or minimize the impact on listed species and their habitat. Such consultation would result in a biological opinion by the Service addressing the anticipated effect of the project on listed and proposed species. The opinion may authorize a limited level of incidental take.

- If no Federal agency is involved with the project, and federally listed species may be taken as part of the project, then you, the applicant, should apply for an incidental take permit. The Service may issue such a permit if you submit a satisfactory conservation plan for the species that would be affected by your project.

  Should your survey determine that federally listed or proposed species occur in the area and are likely to be affected by the project, we recommend that you work with this office and the California Department of Fish and Game to develop a plan that minimizes the project's direct and indirect impacts to listed species and compensates for project-related loss of habitat. You should include the plan in any environmental documents you file.

Critical Habitat

When a species is listed as endangered or threatened, areas of habitat considered essential to its conservation may be designated as critical habitat. These areas may require special management considerations or protection. They provide needed space for growth and normal behavior; food, water, air, light, other nutritional or physiological requirements; cover or shelter; and sites for breeding, reproduction, rearing of offspring, germination or seed dispersal.

Although critical habitat may be designated on private or State lands, activities on these lands are not restricted unless there is Federal involvement in the activities or direct harm to listed wildlife.

If any species has proposed or designated critical habitat within a quad, there will be a separate line for this on the species list. Boundary descriptions of the critical habitat may be found in the Federal Register. The information is also reprinted in the Code of Federal Regulations (50 CFR 17.95). See our Map Room page.

Candidate Species

We recommend that you address impacts to candidate species. We put plants and animals on our candidate list when we have enough scientific information to eventually propose them for listing as threatened or endangered. By considering these species early in your planning process you may be able to avoid the problems that could develop if one of these candidates was listed before the end of your project.

Species of Concern

The Sacramento Fish & Wildlife Office no longer maintains a list of species of concern. However, various other agencies and organizations maintain lists of at-risk species. These lists provide essential information for land management planning and conservation efforts. More info

Wetlands

If your project will impact wetlands, riparian habitat, or other jurisdictional waters as defined by section 404 of the Clean Water Act and/or section 10 of the Rivers and Harbors Act, you will need to obtain a permit from the U.S. Army Corps of Engineers. Impacts to wetland habitats require site specific mitigation and monitoring. For questions regarding wetlands,

please contact Mark Littlefield of this office at (916) 414-6520.

Updates

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be May 21, 2013.

Attachment 2

Evaluation of Power Line Threats to California Condor

Bloom Biological, Inc.
Research | Consulting | Conservation

POWER LINE THREATS TO CALIFORNIA CONDORS (*GYMNOGYPS CALIFORNIANUS*)

Lloyd Kiff and Peter H. Bloom
May 22, 2013

EXECUTIVE SUMMARY

This paper analyzes the potential for condor mortality and harm and harassment from the construction and operation and maintenance of the Southern California Edison (SCE) San Joaquin Cross Valley Loop Transmission Line (Cross Valley Line) in Tulare County, California. A detailed review of the published literature and other documents to determine the extent of California Condor (*Gymnogyps californianus*) mortality from power line encounters revealed only a single possible instance of a (juvenile) condor colliding with a power line prior to the post-release (>1992) era. Eleven captive-produced juvenile condors less than 18 months of age have been killed from electrocutions (7) or collisions (4) with distribution lines since 1993. All of these incidents occurred in the vicinity of the birds' original release sites in the coastal mountains of southern and central California, except for one bird lost in Arizona. None involved high-voltage transmission lines. It was therefore concluded that the potential for condor mortality from encounters, including collisions and electrocutions, with the proposed Cross Valley Line is negligible. Deleterious effects of construction and operation and maintenance activities associated with the Cross Valley Line is expected to be minimal, because there are no active condor nests in the vicinity, little, if any, current condor foraging activity in the region, and most of the proposed route is not within the historical condor foraging range. Further, the Cross Valley Line is not located in Critical Condor Habitat.

CROSS VALLEY LINE PROJECT DESCRIPTION

The Cross Valley Line will consist of construction of a new approximately 23-mile double-circuit 220 kV transmission line that will loop (i.e., connect) SCE's existing Big Creek 3-Springville 220 kV transmission line to the existing Rector Substation line to give SCE greater reliability and flexibility in distributing electrical power to the Rector Substation. Transmission lines (± 220 kV to 765 kV) are used to transmit large blocks of electricity from a power generation facility to load centers (communities). Structural components of the Cross Valley Line are shown in an attached exhibit.

DISTRIBUTION AND CURRENT STATUS OF THE CALIFORNIA CONDOR POPULATION

By the last half of the 20th century, the range of the California Condor was confined to a wishbone-shaped area around the San Joaquin Valley, extending from Santa Clara and San Benito Counties south through the Coastal Ranges to Ventura and northern Los Angeles Counties, in the foothills around the southern end of the San Joaquin Valley, and north through the Tehachapi Mountains and the foothills of the Sierra Nevada to Tulare and Fresno Counties (Koford 1953, Wilbur 1978, Meretsky and Snyder 1992). The last individual in the historical condor population was removed from the wild in 1987 for captive breeding purposes, and the release of captive-produced young began in January 1992 (Kiff 2000). Release sites have been located in the coastal mountains of Ventura, Santa Barbara, San Luis Obispo, Monterey, and San Benito Counties (Grantham 2007). Breeding in the wild by the released condors is occurring regularly now, and by 20 April 2013, the wild population in central and southern California included 138 birds (U.S. Fish and Wildlife Service 2013). All known nesting attempts in California by the reintroduced condor population have been in the coastal mountains of San Benito, Ventura and Santa Cruz Counties,

except for two recently used nest sites in southeastern Kern County (Joseph Brandt, USFWS, pers. comm.).

THERE IS LOW POTENTIAL FOR CONDOR OCCURRENCE IN THE HCP PLANNING AREA

Historical condor use in Tulare County consisted of foraging and roosting, and nesting. These activities occurred in the foothills and lower elevations of the nearby Sierra Nevada, and condors did not typically visit the flat agricultural areas of the San Joaquin Valley. The flat agricultural lands of the valley floor, where the Cross Valley Line is proposed, provide little feeding opportunities for condors, or thermal lift needed for soaring; thus, the species rarely, if ever, occurred over the flatland portions of the actual San Joaquin Valley historically (Koford 1953). Until the 1980s, condors foraged in foothills as far north as the Lake Kaweah region, with the White River, Deer Creek, Lake Success, and Yokohl Valley areas being of special importance (U.S. Fish and Wildlife Service 1984). This region was used by foraging condors primarily during the summer months (Koford 1953, Miller et al. 1965, Wilbur 1987, Meretsky and Snyder 1992). The nearest area of designated condor Critical Habitat is over 5 miles to the east in the foothills. There are no California Condor nesting records in the San Joaquin Valley itself and only two known instances of condors nesting in California east of the San Joaquin Valley. Both nests were in cavities in Giant Redwood (*Sequoiadendron giganteum*) trees in Tulare County (Snyder et al. 1986, Wilbur 2006). The first nest was found in June 1950 in the Tule River Indian Reservation (Koford 1953) and was located "about 35 miles from Springville" (Ainsworth 1950), or approximately 30 miles southeast of the Rector Substation. The other was confirmed in 1984 at a montane site in the Sequoia National Forest estimated to be less than 30 miles from the eastern end of the proposed Cross Valley Line. Presently, there are no known active condor nests in the Sierra Nevada region, and based upon historical knowledge as well as current radio telemetry observations of all adults, there is no reason to suspect that any exist.

The Blue Ridge Critical Condor Habitat Zone was established in 1976 to protect the most important condor roosting area in the Sierra Nevada region and to complement foraging activities in the nearby foothill zone. It encompasses 3,195 acres located nine air miles north of Springville and 12 air miles south of Three Rivers in central Tulare County, roughly 25-30 miles southeast of the Rector Substation. The extreme eastern tip of the Cross Valley Line is approximately 5 miles northwest of the extreme northwestern corner of the northernmost areas of condor Critical Habitat. As in the case of birds foraging in the Sierra foothills, the Blue Ridge area was used by roosting condors primarily in July-August, but a few birds occurred at other times of the year. Several condor biologists have indicated that there is no present use of the Blue Ridge roost sites by condors.

While the post-release condor population has been steadily reoccupying many portions of its historical range (Johnson and Haig 2010), there is still relatively little use of the Habitat Conservation plan area (USFWS unpubl. data). During 2011, three condors that were hatched in captivity and released in the Los Padres National Forest were recorded by USFWS biologists soaring and roosting within 15 miles of the Cross Valley Line (Quad Knopf 2013). On 1 May 2011, one of these individuals (ID-1) was recorded approximately 1.4 miles north of the proposed transmission line. This was likely a temporary stopover that occurred while the condor foraged in the region. This condor was also recorded on 2 May and 3 May 2011 north and southeast of the transmission line, 22 miles and 14 miles, respectively, within foothill landscapes more suitable for foraging California Condors. Two other California Condors were recorded on 30 May 2011, approximately 14.3 miles southeast of the proposed Cross Valley Line. All three of these condors were likely engaged in exploratory or dispersal flights, but there is no indication that they have become permanently established in the area (Quad Knopf op cit.), A USFWS biologist indicated that the infrequent occurrence of condors in their former range in the Sierra Nevada foothills has occurred mostly in summer, as was the case historically (Joseph Brandt pers. comm.).

Even if condors reoccupy their traditional foraging areas, as expected, they are not likely to occur in the vicinity of the proposed Cross Valley Line, where they did not forage, roost, or nest historically. Therefore, proposed operation and maintenance activities would not affect condors.

THERE IS LOW POTENTIAL FOR CONDOR ELECTROCUTION OR COLLISIONS WITH HIGH-VOLTAGE TRANSMISSION LINES

All major summaries of California Condor history, conservation, and biology were reviewed, including Koford (1953), Miller et al. (1965), Wilbur (1973, 1978), Snyder and Snyder (1986, 1989, 2000), Kiff (1996), Kiff et al. (2000), and Snyder and Schmitt (2002). None mentioned condor mortality from power line collisions or electrocutions during the pre-release era (<1992). It should be noted that there are now tens of thousands of hours of radio-tagged California Condor flight time data in California with no reports of mishaps with high-voltage transmission lines. Based upon our current knowledge, the significance of this in the context of this relatively small, regionally localized project cannot be overemphasized.

A further review of the minor condor literature and field notes of condor biologists revealed only a single instance of a confirmed condor death blamed on a power line collision in the pre-release era (Brunetti 1965a, 1965b, California Department of Fish and Game 1965, Crabtree 1996). There was no witness to the actual collision, or details on the type of power line that might have been involved, and the nature of its injuries suggest that the bird may have actually died from some other form of trauma, e.g., a blow delivered by a Golden Eagle, which caused it crash to its death on a highway.

Condors are relatively intelligent, visually oriented birds. As a rule, probably due to poor foraging visibility and a lack of lift, condors do not forage in the tule fog of the San Joaquin Valley. Further, none of the radio telemetry data from the 1980s suggest any use of the San Joaquin Valley (Meretsky and Snyder 1992), and, to our knowledge, the most recent FWS radio telemetry data from all of the released California birds equipped with transmitters from 1992 through 2012 also support this conclusion (USFWS unpubl.). Condors move around on nest cliffs and between roost trees in foggy conditions, but thousands of hours of direct observations in the field at various California roost and nest sites during the 1980s yielded no suggestion that condors make long distance movements in fog (Bloom pers obs. – Condor Research Center 1982 - 1987).

It is also likely that condors detect transmission lines (along with ground wires) easily due to their larger diameter and relative position and proximity to large distinct towers. The taller height of the high-voltage transmission lines framed against the sky line compared to much lower distribution lines, which are often camouflaged by the nearby backdrop of hillside terrain, is probably another key factor allowing condors to detect and avoid collision with higher-voltage transmission lines. In contrast to the high mortality of young condors along the Big Sur coast with distribution lines, high-voltage transmission lines tend to be further from releases sites, and young birds in their vicinity are more likely to be in the company of experienced adults and observe them avoiding the lines. Because they are usually released in groups and have no (or few unrelated) adults at release sites to mentor them, young condors are more prone to collisions with existing nearby distribution lines, as they learn how to fly.

Importantly, the Winter's Ridge roost site on Tejon Ranch, one of the most important roosts in California has been occupied by condors during various months of the year since at least the Koford era, and lies within 5 miles of a high-voltage transmission line. Winter's Ridge is also subject to intense fog and intense high winds, yet none of the California Condors either historically, during the 1980s period of intense research, or the contemporary population are known to have suffered any mortality from this line or its towers.

As a result, the probability of a condor mortality by either electrocution or collision with the Cross Valley Line where condors are not known to fly, forage, roost or nest is remote, even with an occasional condor flying in the vicinity. The likelihood of a condor mortality in the fog due to a collision along this line is presently even more remote since condors as a rule do not make long distance flights under foggy conditions, particularly at the elevation of the Cross Valley Line over largely agricultural habitat.

Of the 11 confirmed deaths of condors from power line encounters in the post-release era (1993-2007), all have been of released juvenile birds less than 18 months of age (Table 1) and have mostly occurred in the vicinity of their release sites, far away from the proposed Cross Valley Line (Rideout et al. 2012). Of the confirmed deaths, only distribution lines were implicated. In addition, an 8 1/2 month-old Andean Condor in an experimental release project in Hopper Mountain National Wildlife Refuge, Ventura County, collided with a 3-wire distribution line, on 24 February 1989.

The likelihood of condor collision with transmission lines was analyzed by the Service for the biological opinion for Tehachapi Renewable Transmission Project (TRTP (2010). The Service concluded that the available data shows little likelihood that California condors will collide with existing transmission lines (see TRTP Biological Opinion at 4). The Service accordingly found that TRTP was not likely to adversely affect condors. Id. ("Based on current information collected and the behavior of the birds in areas where existing transmission lines are present, the Service believes that the proposed project will not adversely affect California condors during operation. We have made this determination because current documentation has shown little likelihood that California condors will collide with existing transmission lines.") The Service also noted that "where California condors have not begun to inhabit the proposed project location, we expect that the transmission line will be in place before California condors begin to occupy and use this area. Because the transmission line will already be in place when California condors begin to use the area, we expect that the birds will exhibit similar behavior patterns to the birds in the southern portions of the project area. For these reasons, the Service concurs that the proposed project is not likely to adversely affect the California condor." The same reasoning is applicable here to the Cross Valley Line.

Following the first releases of California condors in 1992, several birds were lost to electrocution because they perched on power poles. Most captive-produced condors are now subjected to aversive conditioning prior to their release. Artificial power poles were installed in pens housing birds scheduled to be released, and individuals attempting to perch on the poles received a mild electric shock (Wallace 1994, 2000). Subsequently condors have only rarely perched on transmission towers and only during the first series of releases in the 1990s. This undesirable behavior has been eliminated, and no condors have perched on this particular reach of towers in the San Joaquin Valley. There have been only three California Condor casualties from distribution line encounters in the past 10 years, and all the incidents on the Big Sur Coast were associated with one line. The last incident was in May 2007 (Rideout et al. 2012). This anomaly as a cause of California Condor mortality in young birds, was corrected after the relatively short distance of line was buried.

Condors regularly and predictably forage in foothills bisected by high-voltage transmission lines where carrion (mostly cattle and sheep) is common, yet so far have always avoided contact with these prominent structures. It should also be noted that while condors regularly pass over several major transmission lines in California, most of the reaches of these lines do not have bird diverters. Not only do condors naturally move around and over transmission lines without diverters, they rarely perch on power towers and hence are not attracted to them. Even though the proposed Cross Valley Line would cross active cattle ranch lands at the northeast end, the overwhelming evidence is that condors will continue to avoid collisions with high-voltage transmission lines.

MITIGATION MEASURES FROM EIR/CONSERVATION MEASURES IN HCP

Based upon the abundance of flight and other behavioral data from radio tagged California condors over the last 30 years, a "take" resulting from a collision between a California Condor and a 220 kV transmission line, such as the Cross Valley Line, would seem to be an incredibly remote possibility. In an abundance of caution, however, the inclusion of bird diverters along segments of this line, particularly where it intersects ranch lands, would be prudent given the proximity (approximately 30 miles from the eastern end of the proposed Cross Valley Line) of the 1980s nest site in the Sequoia National Forest. Given the proven effectiveness of bird diverters at reducing mortality of eagles and vultures all over the world (APLIC 2012) and that condors have never been known to strike a 220 kV transmission line, the addition of flight diverters should make the likelihood of a collision near zero.

Line marking devices are non-lighted reflective structures that are fitted on the optical ground wire (OPGW) to make it more visible to birds. The Cross Valley Line will use two types of line marking devices: (1) BirdMark Model BM-AG diverters, which are 5.375-inch-diameter discs with reflective tape on their center and that glow in dim light and at night; and (2) Swan-Flight diverters, which consist of a colored PVC rod wrapped around the OPGW in a coil with a 7–8-inch diameter. SCE will install line marking devices along the OPGW at 15- or 30-foot intervals. 30-foot intervals will be used on the north-south section of the transmission line, where the adjacent existing transmission line will also have line marking devices at 30-foot intervals, but offset 15 feet from those on the Cross Valley Line.

On the east-west portions of the Cross Valley Line, line marking devices will be installed at 15-foot intervals. West of the Friant-Kern Canal, SCE will install BirdMark diverters except in between transmission structures: 8 and 9, 14–16, 18 and 19, 50–53, 78 and 79, and 83 and 84, where Swan-Flight diverters will be installed (Fig. 1). East of the Friant-Kern Canal, alternating BirdMark and Swan-Flight diverters will be installed from Constructed Structure 90 to Constructed Structure 104.

CONCLUSION

There is no evidence that California Condors have been killed or injured by electrocution or collisions with high-voltage transmission lines. In our opinion, not only is mortality of California Condors a rare event, the Cross Valley Line essentially poses no risk to California Condors, based upon the Endangered Species Act description of harm and harassment. For the most part wild condors to date simply recognize and avoid, or ignore the lines and towers. Temporary construction activities for the Cross Valley Line should not affect condors, because condors did not occur historically in the immediate project area and are not expected to occur there in the future. The effects of operation and maintenance activities are likely to be negligible, as condors resume foraging in the nearby foothills, judging from the lack of reports of such problems along many miles of high-voltage transmission lines elsewhere in their range.

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Raptor Information System (http://ris.wr.usgs.gov/search.asp): A bibliographic database containing about 33,000 records, including 1,998 on the California Condor. http://ris.wr.usgs.gov/search.asp

Attachment 3

Evaluation of Power Line Threats to Golden Eagle and Bald Eagle

Bloom Biological, Inc.
Research | Consulting | Conservation

POWER LINE THREATS TO GOLDEN (*AQUILIA CHRYSAETOS*) AND BALD (*HALIAEETUS LEUCOCEPHALUS*) EAGLES

Peter H. Bloom and Lloyd Kiff
May 24, 2013

EXECUTIVE SUMMARY

Bloom Biological, Inc. (BBI) was invited to review potential threats to Bald and Golden Eagles in connection with the proposed construction and operation and maintenance of the 220-kV Cross Valley Line (CVL) project in Tulare County, California. An aerial survey by BBI in 2011 confirmed the location of 5 active Golden Eagle nests and a Bald Eagle nest in the vicinity of the proposed Cross Valley Line. Historically, eagles have suffered mortality from encounters with power poles and power lines through electrocution and/or collision trauma. The problem of avian electrocution has been greatly reduced by modern power pole design changes, including the installation of such features as insulating covers and widely separated elements to prevent birds from contacting two lines simultaneously. Nearly all power line-caused mortality of eagles in the western United States now involves lower voltage distribution lines (<69-kV); collisions with high-voltage transmission lines (>220-kV) are practically unknown to occur. Mitigation measures, e.g., the installation of line marking devices, may further reduce eagle mortality rates. Construction activities could inhibit eagle use of the immediate corridor area on a temporary basis, but they will not occur near, or in line-of-sight, with Golden and Bald Eagle nests in the area. Both eagle species have large home ranges, and it is expected that they will merely shift their activities to other areas during the Cross Valley Line construction period. In an abundance of caution, major construction of the east end of the Cross Valley Line should be avoided from January 1 to July 1, to the extent practicable. Based on our review, we predict that any potential negative effects on eagles from the Cross Valley Line are likely to be very negligible.

CROSS VALLEY LINE PROJECT DESCRIPTION

The proposed Cross Valley Line will consist of construction of a new approximately 23-mile double-circuit 220 kV transmission line that will loop (i.e., connect) SCE's existing Big Creek 3-Springville 220 kV transmission line to the existing Rector Substation line to give SCE greater reliability and flexibility in distributing electrical power to the Rector Substation. Transmission lines (± 220 kV to 765 kV) are used to transmit large blocks of electricity from a power generation facility to load centers (communities). Structural components of the proposed Cross Valley Line are shown in Fig. 1.

POTENTIAL FOR BALD AND GOLDEN EAGLE OCCURRENCE IN THE HCP PLANNING AREA

The Golden Eagle (*Aquila chrysaetos*) is an uncommon, but widely distributed permanent resident of most of California, except for areas with dense human populations and most portions of the coastal strip, and the breeding population is supplemented by northern migrants in the winter months (Grinnell and Miller 1944). Bald Eagles (*Haliaeetus leucocephalus*) were much less common historically and were nearly extirpated as a California breeding species from the eggshell-thinning effects of DDE, a breakdown metabolite of the ubiquitous pesticide, DDT, (U.S. Fish and Wildlife Service 1986). Following an EPA ban on the domestic use of DDT in 1972, the California Bald Eagle has recovered, and the breeding population is now more widely distributed in the state than prior to the advent of DDT in 1947 (California Department of Fish and Wildlife 2013).

Both eagle species currently nest and forage in the ranchlands of Tulare County, with foraging activities of Golden Eagles occurring in the oak woodlands and ranchlands of the foothills and those of Bald Eagles being confined mainly to watercourses and lakes in the area. Protocol surveys for nesting golden eagles within 4 miles of the Cross Valley Line were conducted by Bloom Biological, Inc. in 2011 (BBI 2011) and are scheduled to be conducted again in 2013. During the 2011 nesting surveys, active nests belonging to four pairs of Golden Eagles were found within the 4-mile survey area. The four nests were identified within 0.5, 1.1, 1.19 and 2.1 miles, respectively, from the proposed center line of the Cross Valley Line. A fifth active Golden Eagle nest and one active Bald Eagle nest were located slightly outside of the 4-mile survey area; the Golden Eagle nest just over 4.0 miles and the Bald Eagle nest was 4.4 miles from the proposed center line of the Cross Valley Line.

THE LIKELIHOOD OF EAGLE ELECTROCUTION WITH A 220 KV TRANSMISSION LINE IS LOW

Power lines and power poles present a potential electrocution hazard to wild birds. Birds are electrocuted when they touch a conductor while perched on a grounded component, touch a conductor and the groundwire, or touch two conductors simultaneously with fleshy portions of the body (Janss and Ferrer (1999). Sufficient phase-to-phase and phase-to-ground wire spacing is critical for large-winged birds, especially eagles, and electrocution occurs most commonly where conducting wires are placed closer together than the wingspan of birds that frequent the poles. Electrocution does not occur when dry feathers make contact, but wet feathers conduct current better than dry feathers and become capable of conducting life-threatening amperages starting at about 5,000 volts (Olendorff et al. 1981).

Eagles are among the avian groups most prone to power line electrocution because of their large body size and behavior, which may include perching, roosting, and even nesting (Golden Eagles) on power poles (Bevanger 1998). In the United States, Golden Eagles are reported electrocuted 2.3 times more frequently than Bald Eagles in the western United States and with more juveniles reported killed than adults (Harness 1997).

Early studies showed eagles making up the majority of electrocution mortality. These early studies focused on causes of eagle mortality. Harness and Wilson (2001) analyzed electric utility data from 1986 to 1996 in rural western United States, and of 1,428 electrocutions recorded, 748 (52.4%) were of Golden Eagles, with 66% of those aged represented by juvenile birds. Lehman et al. (2010) determined the cause of death for 140 birds found under distribution line power poles in two study areas in northeastern Utah and northwestern Colorado, and 52 (48%) had been electrocuted, including 36 Golden Eagles, of which 64% were subadults. Significantly higher rates of deaths of juvenile Golden Eagles than adults have been attributed to inexperience in flying and more frequent pole use by subadults (Benson 1981, Olendorff et al. 1981), although this may be partly because they constitute the largest portion of the population, especially in autumn (Bevanger 1994). However, in a 2005 survey of APLIC-member utilities, red-tailed hawks were cited as one of the most commonly electrocuted species. In particular, SCE reported red-tailed hawks as making up about 75% of electrocuted raptors (APLIC 2006).

Golden Eagles are at higher risk from electrocution than Bald Eagles because they reach their highest densities in shrub steppe habitats in the western United States where natural perches are rare (Harlow and Bloom 1989) and therefore take advantage of power poles for perching, roosting, and nesting. In contrast, Bald Eagles are at lower risk from electrocutions because they are adapted to forested habitats and shorelines, where natural perches are often abundant (Stalmaster and Newman 1979). Even so, Lehman (2001) rated electrocution as the fourth leading cause of death for Bald Eagles.

In the case of the Cross Valley Line, electrocution risks will be greatly minimized or totally eliminated because of two important design features, including the wide spacing of wires and the location of insulators (Fig. 1). Electrocution of eagles on transmission lines with these modern features is almost non-existent (APLIC 2012).

THE LIKELIHOOD OF EAGLE COLLISION WITH A 220 KV TRANSMISSION LINE IS LOW

Olendorff et al. (1981) and Kochert and Olendoff (1999) concluded that electrocutions were responsible for much more raptor mortality than trauma from collisions with power lines or tower lattices, and all major studies in the western United States have confirmed that electrocution poses a greater threat to Golden Eagles than power line collisions (Kochert and Steenhof 2002, Lehman et al. 2007, Lehman et al. 2010).

Heavy-bodied birds with limited maneuverability (cranes, flamingos, storks, bustards), flocking species (waterfowl, shorebirds), and fast-flying species (falcons) are at greatest risk of power line collisions (Bevanger 1994, Bevanger and Overskaug 1998, Janss 2000, Jenkins et al. 2010). Despite being thermal soarers, eagles (and large vultures) are rarely reported as collision victims, probably due to a low number of power line crossings per day and their solitary habits (Janss op cit.). In addition, the fact that Golden Eagles regularly perch on high transmission towers, and occasionally nest on them, may also predispose them to fewer wire collisions than other groups of birds that have limited familiarity with power lines. In addition, eagles have keen eyesight, are maneuverable in flight, and generally do not fly in restrictive flocks (Harness et al. 2003). Bald Eagles are much less likely to perch, roost, or nest on power poles than Golden Eagles.

Virtually all power line-associated eagle mortality is related to impacts with *distribution lines* and, when not electrocuted on the pole, are most commonly a combination of collision and midspan electrocution (Harness and Wilson 2001, APLIC 2012). The studies of Meyer (1979) in Idaho, Wilcox (1979) in Florida, Goodwin (1983), in Washington, Dell and Zwank (1987), in Louisiana, Detrich (1987), in California, and Science Applications International Corporation (2000) in Idaho examined the behavior of Bald Eagles nesting near high-voltage *transmission lines*, and none recorded any electrocutions or collisions. The eagles regularly flew over and under the transmission [?] lines and perched and foraged nearby, but never used the actual power structures for perching.

In contrast, 24 of 77 (34.3%) documented mortalities in the Bald Eagle population at the Aberdeen Proving Grounds in Maryland were thought to be due to collision with distribution lines (Mojica et al. 2009). The electrical infrastructure there is composed of three-phase distribution lines (<±40 kV) with three phases on a 6-ft. crossarm and one neutral line located 5 ft. below the energized wires; the pole configuration was not classified as "avian-safe" (APLIC 2006). The greatest collision risks were found in areas between active nests and frequent foraging areas, and where power lines crossed traditional flight corridors. Mortalities were also higher than expected along lines within 1 km of shoreline compared to those further away, most likely reflecting the fact that the eagles tend to concentrate in the former areas. The authors also felt that the placement of lines perpendicular to major flight lines contributed to more mortality. For example, there was greater mortality on exposed lines between two known communal roost sites and foraging areas. It should be emphasized that these mortalities were associated with *distribution lines*.

THE IMPACT TO EAGLES FROM HABITAT IMPACTS DURING CONSTRUCTION ARE MINIMAL

All of the active 5 Golden Eagle and 1 Bald Eagle nests in the general vicinity of the Cross Valley Line are relatively distant and/or blocked by terrain, and the immediate habitat in the project area is also mostly unsuitable to foraging eagles. The Golden Eagle nest located 0.5 miles of the Cross Valley Line is blocked

by terrain and out of line-of-site. Therefore, "take," as a result of a nest failure due to construction activities, is very unlikely. Eagles are likely to avoid the immediate areas of high levels of human activity associated with project construction, and their foraging ranges are large enough to easily compensate for a temporary loss of habitat affecting such a small area.

MITIGATION MEASURES FROM EIR/CONSERVATION MEASURES IN HCP

The Cross Valley Line project is not expected to cause electrocutions of Golden or Bald Eagles. However, all 6 pairs of eagles, the young produced by them, and migrants may still be at some minimal risk of collision with the new transmission line. Consequently, mitigation efforts should be made to further reduce the level of risk to flying eagles. Based upon the review of the pertinent literature, line marking devices would be the single most effective method of reducing potential power line strikes (= "take") by eagles.

There have been a number of studies of the effectiveness of various migration measures intended to reduce avian mortality on distribution lines and high-voltage transmission lines, but reduction rates may not be replicable from one study to another because of differences in study designs, the species involved, and site-specific conditions (APLIC 2012). Also, there seems to be little consistency between different areas in regard to the effectiveness of particular line marker designs, reflecting performance differences and species differences. Merely assessing the actual impact of collisions in a rigorous quantitative manner has proved to be difficult because of the lack of standardized study designs and, among other factors, the removal of carcasses by scavengers.

With these limiting factors in mind, Barrientos et al. (2011) reviewed the results of 21 studies in which transmission or distribution wires were marked and conducted a meta-analysis to examine the effectiveness of line marking devices of various types in reducing bird mortality. They found that the mortality rate was 78% lower (n = 1,060,746) than at unmarked lines (n = 339,830) on a species-wide basis. Similarly, in a two-year study in Colombia, De La Zerda and Rosselli (2003) found that the use of line marking devices reduced avian mortality from collisions with transmission lines because fewer birds reacted close to the line, fewer birds flew at the height of the conductors, and there were lower collision rates with the marked line. Although 19 species of raptors were recorded in the study area, no raptor collisions were recorded.

Given these findings, the inclusion of line marking devices along segments of the proposed Cross Valley Line, particularly where it intersects ranch lands, would be prudent. As discussed below, SCE will install marking devices along the line to further reduce the already very low potential of eagles colliding the line. Given the proven effectiveness of line marking devices at reducing mortality of eagles and vultures all over the world (APLIC 2012), their addition should make the likelihood of a collision near zero.

Line marking devices are non-lighted reflective structures that are fitted on the optical ground wire (OPGW) to make it more visible to birds. The proposed Cross Valley Line will use two types of diverters: (1) BirdMark Model BM-AG diverters, which are 5.375-inch-diameter discs with reflective tape on their center and that glow in dim light and at night; and (2) Swan-Flight diverters, which consist of a colored PVC rod wrapped around the OPGW in a coil with a 7–8-inch diameter. SCE will install line marking devices along the OPGW at 15- or 30-foot intervals. 30-foot intervals will be used on the north-south section of the transmission line, where the adjacent existing transmission line will also have line marking devices at 30-foot intervals, but offset 15 feet from those on the proposed Cross Valley Line (see attached exhibit).

Line marking devices will be installed at 15-foot intervals between transmission structures: 8 and 9, 14 to16, 18 and 19, 50 to 53, 67 and 68, 78 and 79, 83 and 84, and 90 to 104. All of these spans except for the ones between 90 to 104 will be marked exclusively with Swan-Flight diverters. Between structures 90 to 104, alternating BirdMark and Swan-Flight diverters will be installed.

CONCLUSION

Based upon a comprehensive review of the pertinent literature, our own experiences with eagle mortality and behavior, and avian safe design features, the probability of either a Golden or Bald Eagle suffering death by electrocution or collision trauma from the Cross Valley Line is very small. Disturbances amounting to take from project construction, operation, and maintenance activities will be too localized and infrequent to have any measurable effect on the local eagle populations.

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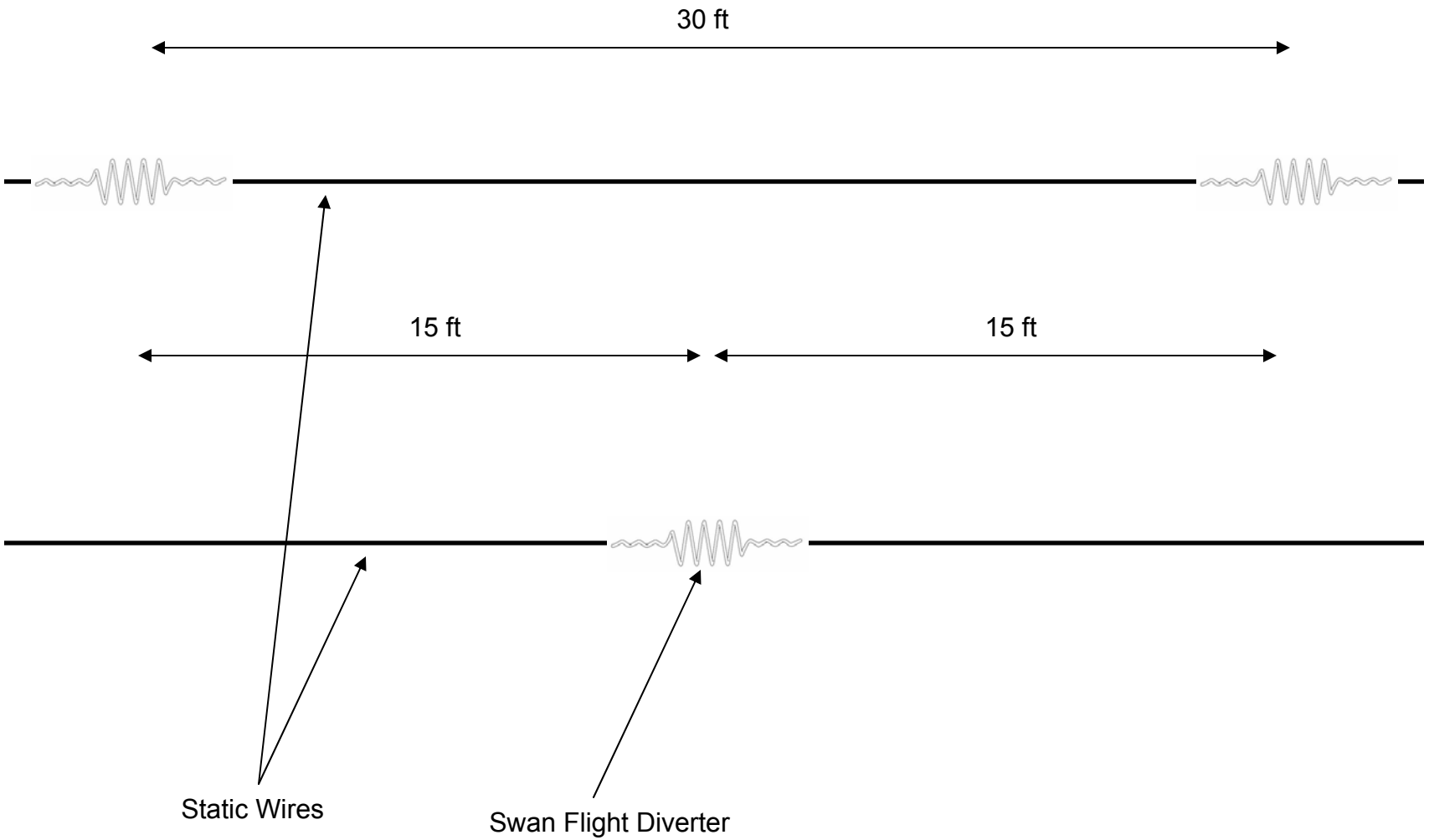
Overhead View of Static Wires Installation of Swan Flight Diverters



APPENDIX B

Detailed Figures of Facility Footprints and Work Areas,
and Terrestrial and Aquatic Land Cover

Appendix B. Detailed Figures of Facility Footprints and Work Areas, and Terrestrial and Aquatic Land Cover

The terms used to describe areas necessary for conducting construction and operations and maintenance (O&M) Covered Activities vary between Chapter 2 and Appendix B. Chapter 2 categorizes each area required for conducting construction and O&M Covered Activities into land disturbance categories (i.e., facility footprints, high disturbance work areas, and low disturbance work areas; see Section 2.1 for definitions). Specific facility footprints and work areas (including high disturbance work areas and low disturbance work areas) are referenced in Chapter 2 when describing the area necessary for conducting each Covered Activity. Appendix B provides figures displaying the location of each type of facility footprint and work area spatially. These figures are referenced in Chapter 2 and are provided to assist reviewers in understanding where facility footprints and work areas are planned within the Habitat Conservation Plan Planning Area and the overlap that exists between the various facility footprints and work areas. Table B-1 provides a crosswalk of terms used in Chapter 2, Covered Activities, and Appendix B.

Table B-1
Crosswalk of Terms Used in Chapter 2 and Appendix B for Construction and Operations and Maintenance Covered Activities

Terms Used in Chapter 2, Covered Activities		Terms Used in Appendix B
Facility Footprints	New Access Roads	New Design Road
	Access Road Cut and Fill Slopes	Graded Slope
	Drainage/Stormwater Diversion Structures	Drainage Features (Ditch, Mac Drain, Overland Crossing, Pipe, Riprap, Water Bar)
	Tubular Steel Pole and Lattice Steel Tower Structure Pads	Clear Areas
	Crane Pads	Crane Pad
High Disturbance Work Areas	Lattice Steel Tower Structure Replacement Areas	Structure Replacement Work Area
	Pull and Tension Sites (in natural land cover)	Wire Set Up Areas (in Nonagricultural Lands)
Low Disturbance Work Areas	New Access Road Work Areas	Structure Work Area, General Disturbance Area, and Guard Pole
	Tubular Steel Pole and Lattice Steel Tower Work Areas	
	Guard Pole Work Areas	
	Off-Road Travel Corridors	Off-Road Travel Route
	Pull-Tension-Splicing Work Areas (in Agricultural Lands)	Wire Set-Up Areas (in Agricultural Lands)

Source: Data compiled by AECOM in 2013

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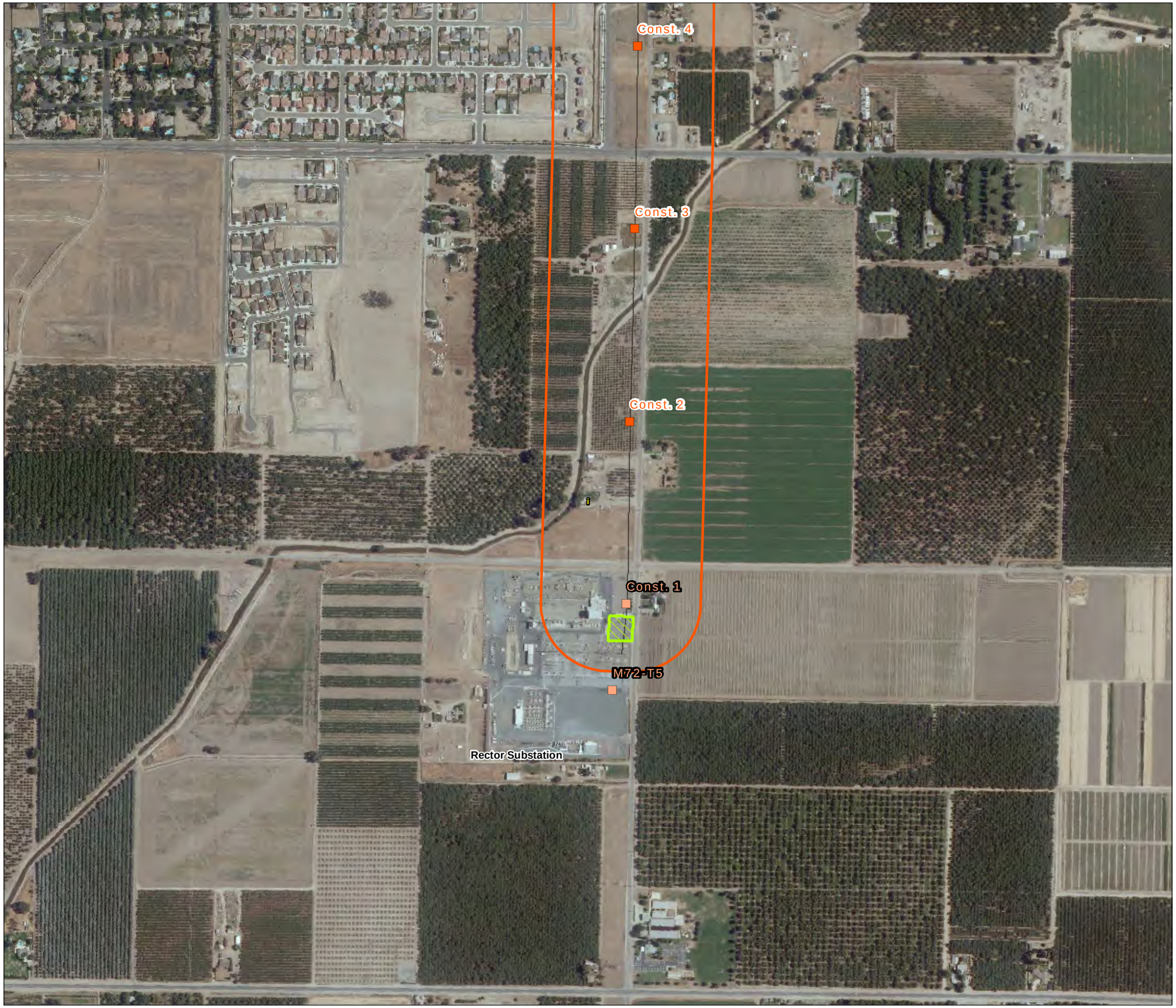
Appendix B
Figure B-1 (i)
Cross Valley Line
Transmission Project



HCP Planning Area
Cross Valley Line

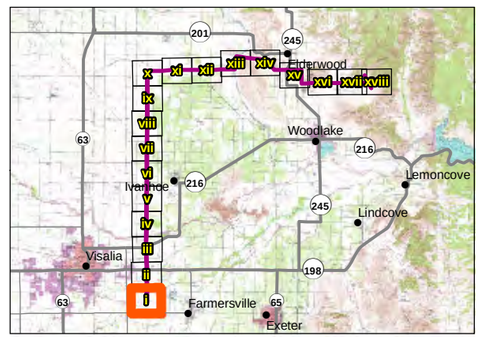
Roads and Travel Routes
- No Improvement Construction use
- All Categories of Improvement
- Off Road Travel Route
- New Design Road
- Graded Slope
- Clear Areas
- Crane Pad
- Wire Setup Areas
- Structure Work Area, General Disturbance Area, and Guard Pole
- Structure Replacement Work Area

Drainage Features
- Ditch
- Mac Drain
- Overland Crossing
- Pipe
- Rip Rap
- Water Bar

N
W E
S

0 200 400 800
Feet

Source: ESRI 2010; SCE 3/19/2013; NAIP 2010



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Habitat Conservation Plan

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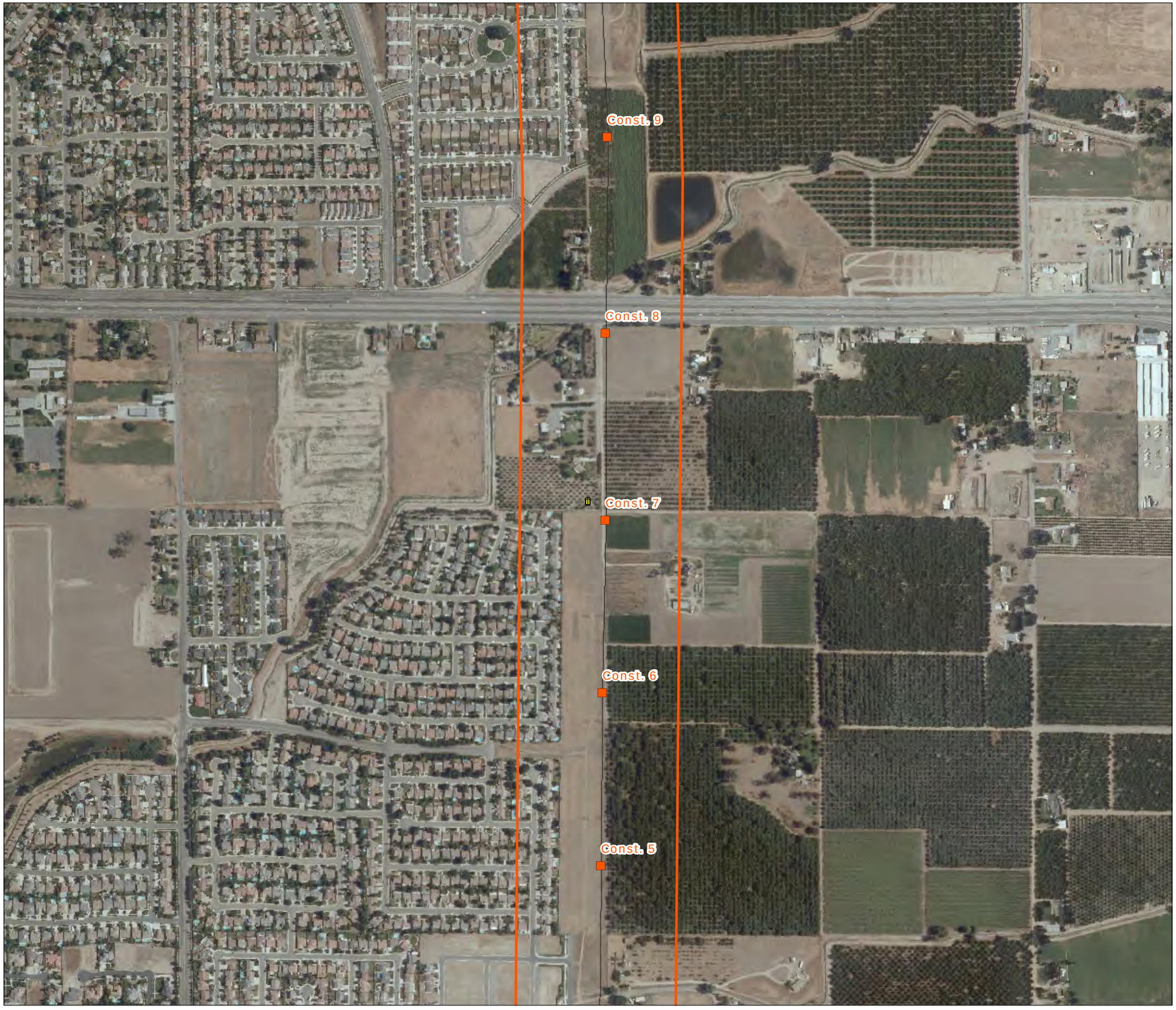


Appendix B
Figure B-1 (ii)
Cross Valley Line Transmission Project

- HCP Planning Area
- Cross Valley Line

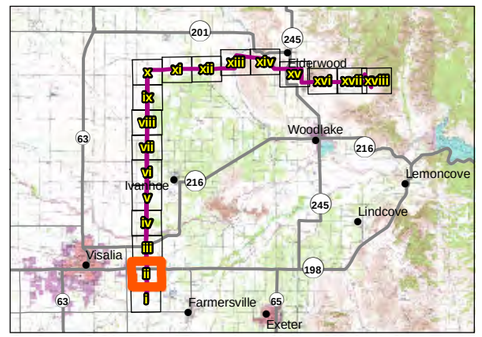
Roads and Travel Routes
- No Improvement Construction use
- All Categories of Improvement
- Off Road Travel Route
- New Design Road
- Graded Slope
- Clear Areas
- Crane Pad
- Wire Setup Areas
- Structure Work Area, General Disturbance Area, and Guard Pole
- Structure Replacement Work Area

Drainage Features
- Ditch
- Mac Drain
- Overland Crossing
- Pipe
- Rip Rap
- Water Bar

N W E S

0 200 400 800 Feet

Source: ESRI 2010; SCE 3/19/2013; NAIP 2010



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Appendix B
Figure B-1 (iii)
Cross Valley Line Transmission Project

HCP Planning Area
Cross Valley Line

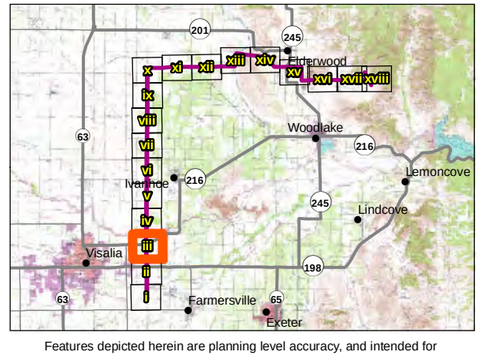
Roads and Travel Routes
- No Improvement Construction use
- All Categories of Improvement
- Off Road Travel Route
- New Design Road
- Graded Slope
- Clear Areas
- Crane Pad
- Wire Setup Areas
- Structure Work Area, General Disturbance Area, and Guard Pole
- Structure Replacement Work Area

Drainage Features
- Ditch
- Mac Drain
- Overland Crossing
- Pipe
- Rip Rap
- Water Bar

N
W E
S

0 200 400 800
Feet

Source: ESRI 2010; SCE 3/19/2013; NAIP 2010



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Appendix B
Figure B-1 (iv)
Cross Valley Line Transmission Project

HCP Planning Area
Cross Valley Line

Roads and Travel Routes
No Improvement Construction use
All Categories of Improvement
Off Road Travel Route
New Design Road

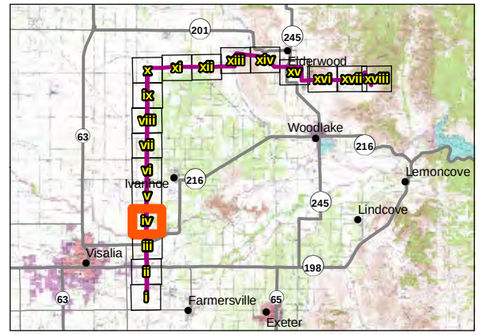
Graded Slope
Clear Areas
Crane Pad
Wire Setup Areas
Structure Work Area, General Disturbance Area, and Guard Pole
Structure Replacement Work Area

Drainage Features
Ditch
Mac Drain
Overland Crossing
Pipe
Rip Rap
Water Bar

N
W E
S

0 200 400 800
Feet

Source: ESRI 2010; SCE 3/19/2013; NAIP 2010



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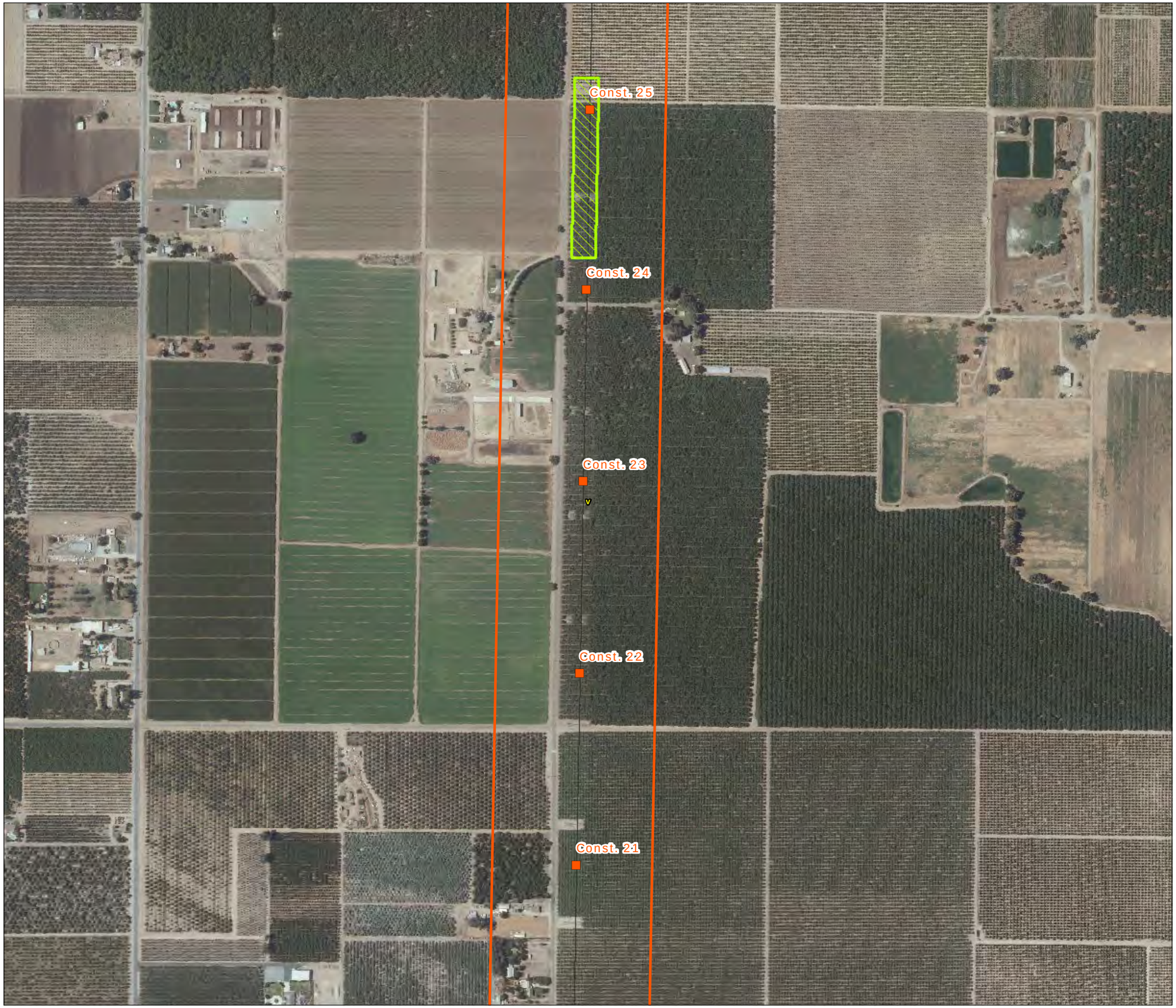
Appendix B
Figure B-1 (v)
Cross Valley Line Transmission Project



HCP Planning Area
Cross Valley Line

Roads and Travel Routes
- No Improvement Construction use
- All Categories of Improvement
- Off Road Travel Route
- New Design Road

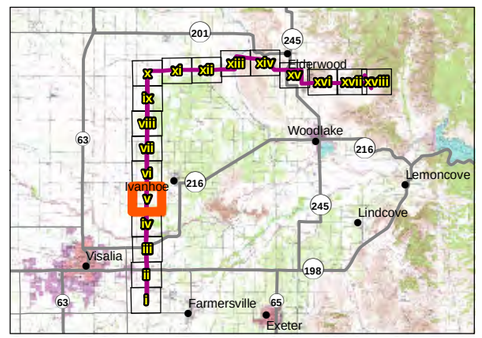
Graded Slope
Clear Areas
Crane Pad
Wire Setup Areas
Structure Work Area, General Disturbance Area, and Guard Pole
Structure Replacement Work Area

Drainage Features
- Ditch
- Mac Drain
- Overland Crossing
- Pipe
- Rip Rap
- Water Bar

N
W E
S

0 200 400 800
Feet

Source: ESRI 2010; SCE 3/19/2013; NAIP 2010



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Appendix B
Figure B-1 (vi)
Cross Valley Line Transmission Project

- HCP Planning Area
- Cross Valley Line

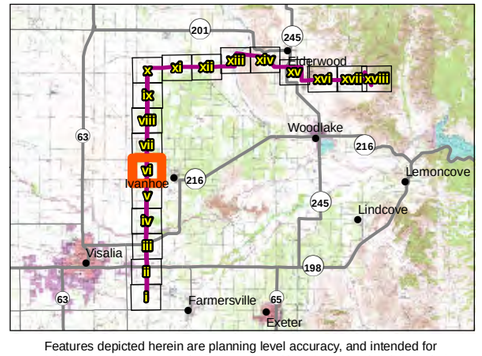
Roads and Travel Routes
- No Improvement Construction use
- All Categories of Improvement
- Off Road Travel Route
- New Design Road
- Graded Slope
- Clear Areas
- Crane Pad
- Wire Setup Areas
- Structure Work Area, General Disturbance Area, and Guard Pole
- Structure Replacement Work Area

Drainage Features
- Ditch
- Mac Drain
- Overland Crossing
- Pipe
- Rip Rap
- Water Bar

N
W E
S

0 200 400 800
Feet

Source: ESRI 2010; SCE 3/19/2013; NAIP 2010



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Appendix B
Figure B-1 (vii)
Cross Valley Line Transmission Project

HCP Planning Area
Cross Valley Line

Roads and Travel Routes
No Improvement Construction use
All Categories of Improvement
Off Road Travel Route
New Design Road

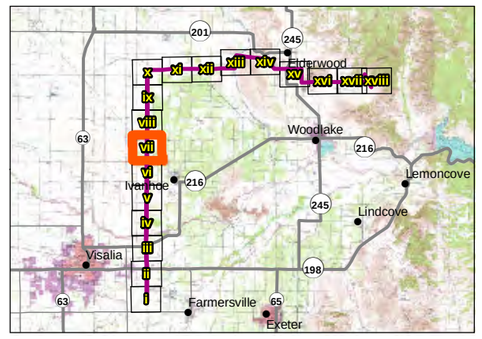
Graded Slope
Clear Areas
Crane Pad
Wire Setup Areas
Structure Work Area, General Disturbance Area, and Guard Pole
Structure Replacement Work Area

Drainage Features
Ditch
Mac Drain
Overland Crossing
Pipe
Rip Rap
Water Bar

N
W E
S

0 200 400 800
Feet

Source: ESRI 2010; SCE 3/19/2013; NAIP 2010



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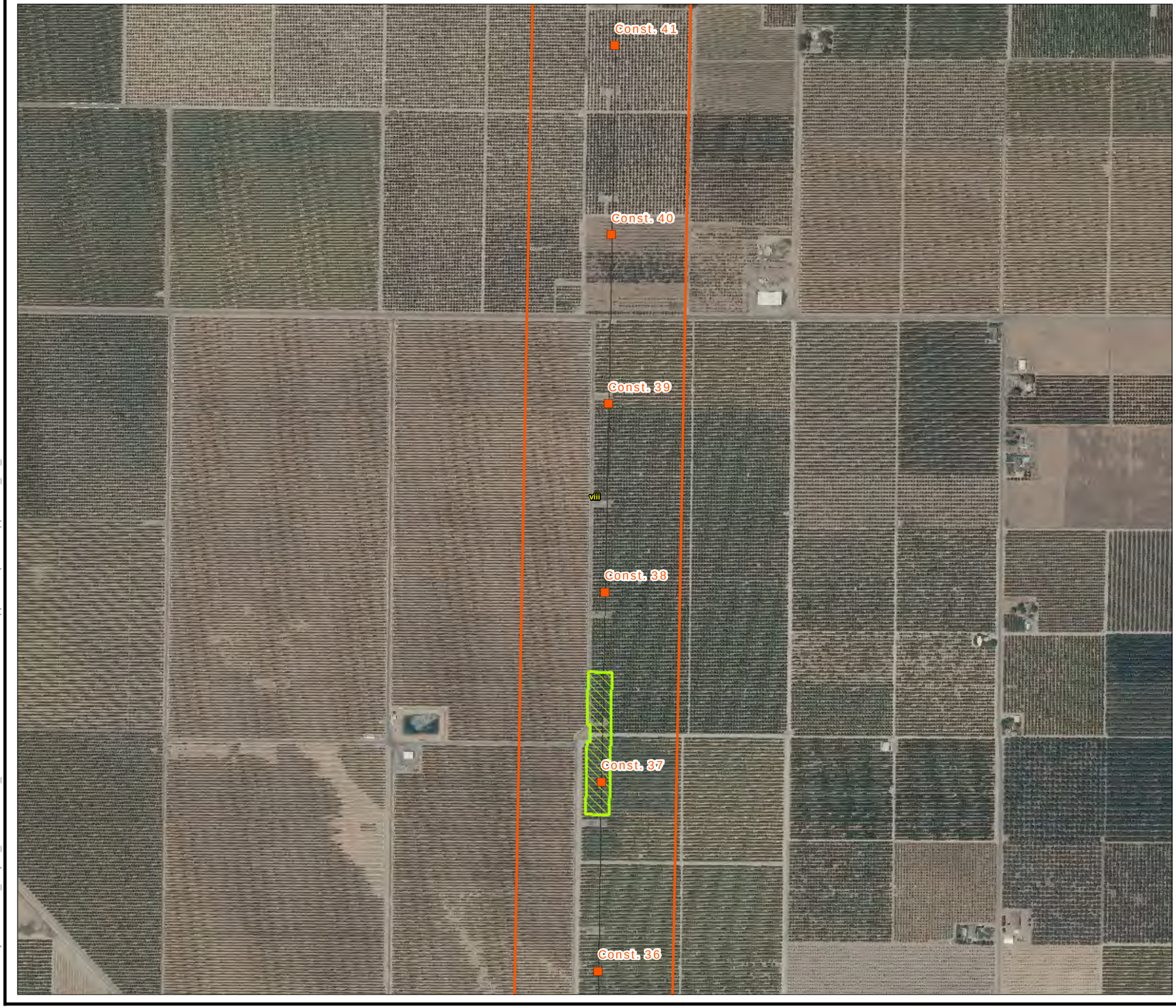


Appendix B
Figure B-1 (viii)
Cross Valley Line Transmission Project

HCP Planning Area
Cross Valley Line

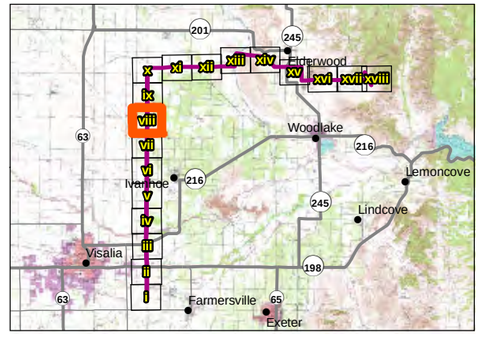
Roads and Travel Routes
No Improvement Construction use
All Categories of Improvement
Off Road Travel Route
New Design Road
Graded Slope
Clear Areas
Crane Pad
Wire Setup Areas
Structure Work Area, General Disturbance Area, and Guard Pole
Structure Replacement Work Area

Drainage Features
Ditch
Mac Drain
Overland Crossing
Pipe
Rip Rap
Water Bar

N
W E
S

0 200 400 800
Feet

Source: ESRI 2010; SCE 3/19/2013; NAIP 2010



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Appendix B
Figure B-1 (ix)
Cross Valley Line Transmission Project

- HCP Planning Area
- Cross Valley Line

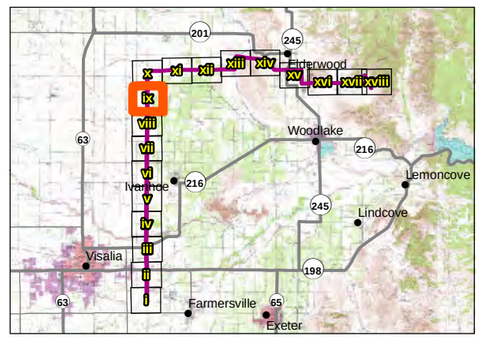
Roads and Travel Routes
- No Improvement Construction use
- All Categories of Improvement
- Off Road Travel Route
- New Design Road
- Graded Slope
- Clear Areas
- Crane Pad
- Wire Setup Areas
- Structure Work Area, General Disturbance Area, and Guard Pole
- Structure Replacement Work Area

Drainage Features
- Ditch
- Mac Drain
- Overland Crossing
- Pipe
- Rip Rap
- Water Bar

N W E S

0 200 400 800 Feet

Source: ESRI 2010; SCE 3/19/2013; NAIP 2010



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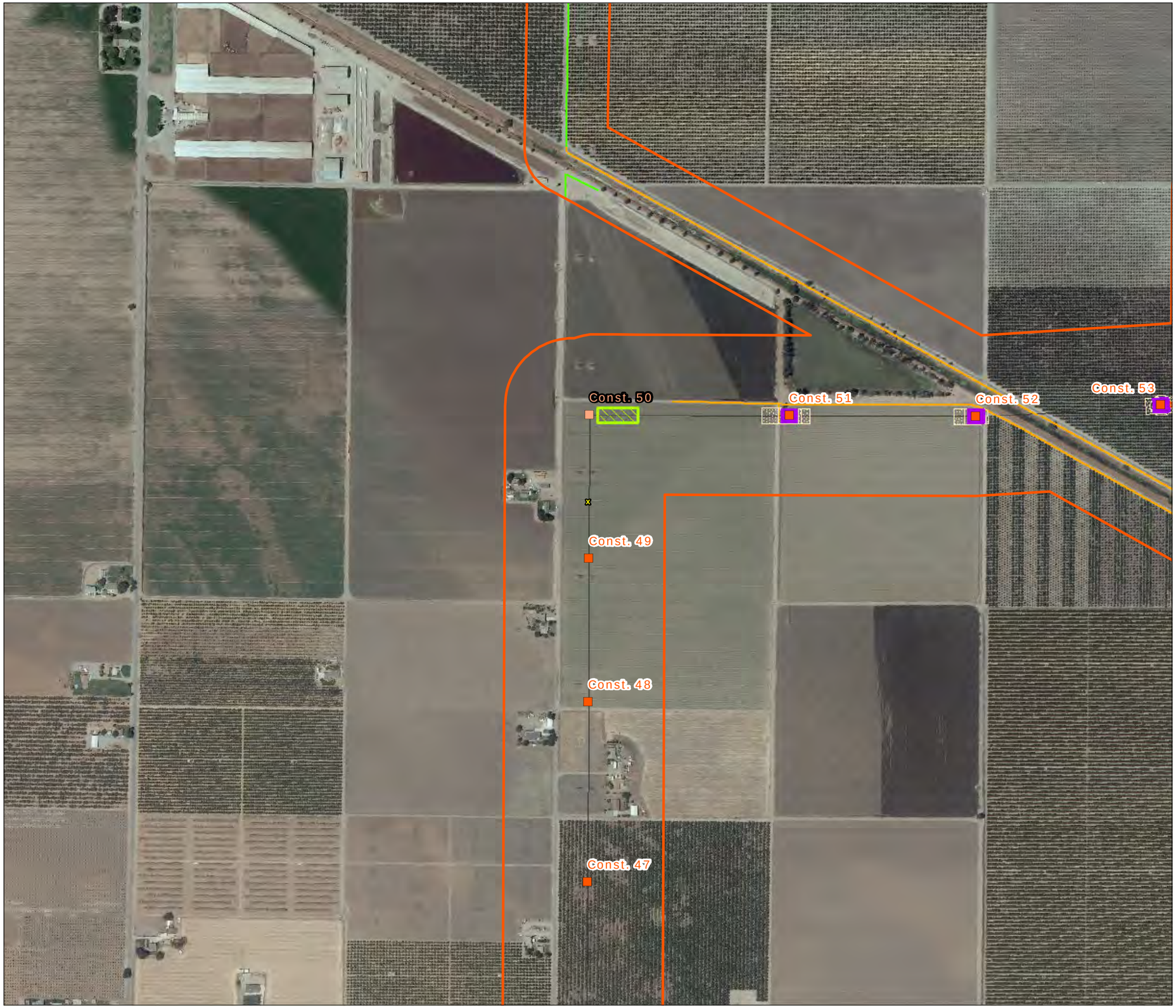


Appendix B
Figure B-1 (x)
Cross Valley Line Transmission Project

- HCP Planning Area
- Cross Valley Line

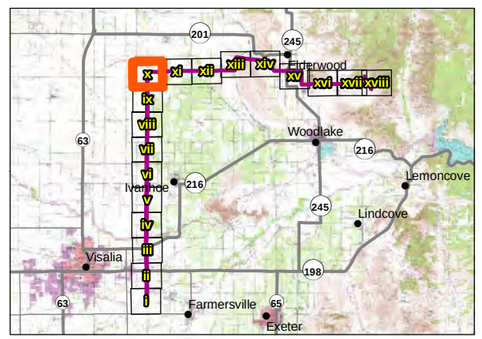
Roads and Travel Routes
- No Improvement Construction use
- All Categories of Improvement
- Off Road Travel Route
- New Design Road
- Graded Slope
- Clear Areas
- Crane Pad
- Wire Setup Areas
- Structure Work Area, General Disturbance Area, and Guard Pole
- Structure Replacement Work Area

Drainage Features
- Ditch
- Mac Drain
- Overland Crossing
- Pipe
- Rip Rap
- Water Bar

N
W E
S

0 200 400 800
Feet

Source: ESRI 2010; SCE 3/19/2013; NAIP 2010



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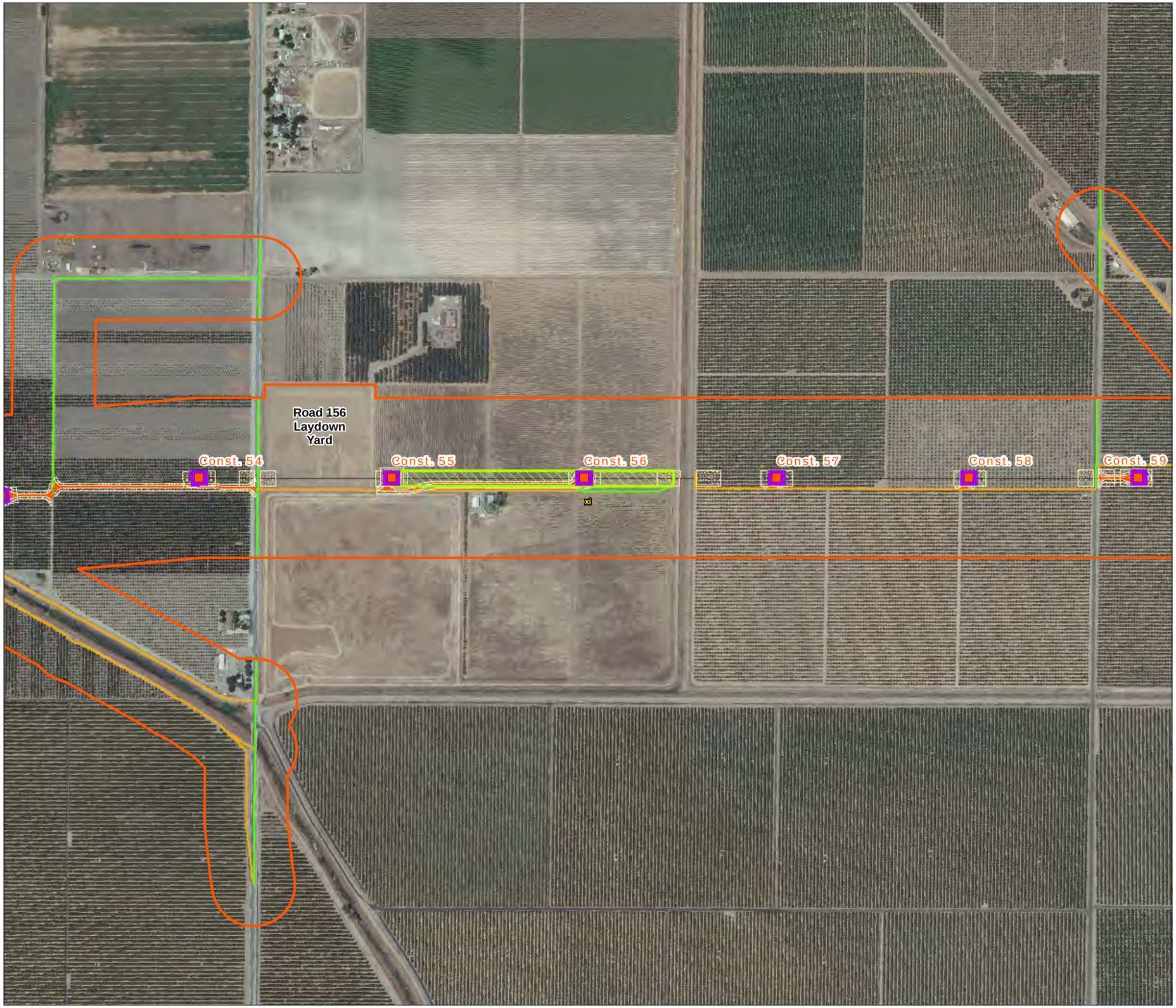
Appendix B
Figure B-1 (xi)
Cross Valley Line Transmission Project



HCP Planning Area
Cross Valley Line

Roads and Travel Routes
- No Improvement Construction use
- All Categories of Improvement
- Off Road Travel Route
- New Design Road

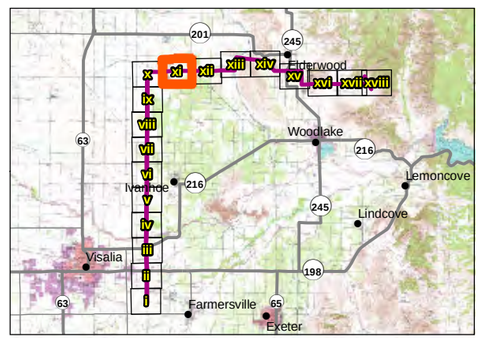
Graded Slope
Clear Areas
Crane Pad
Wire Setup Areas
Structure Work Area, General Disturbance Area, and Guard Pole
Structure Replacement Work Area

Drainage Features
- Ditch
- Mac Drain
- Overland Crossing
- Pipe
- Rip Rap
- Water Bar

N
W E
S

0 200 400 800
Feet

Source: ESRI 2010; SCE 3/19/2013; NAIP 2010



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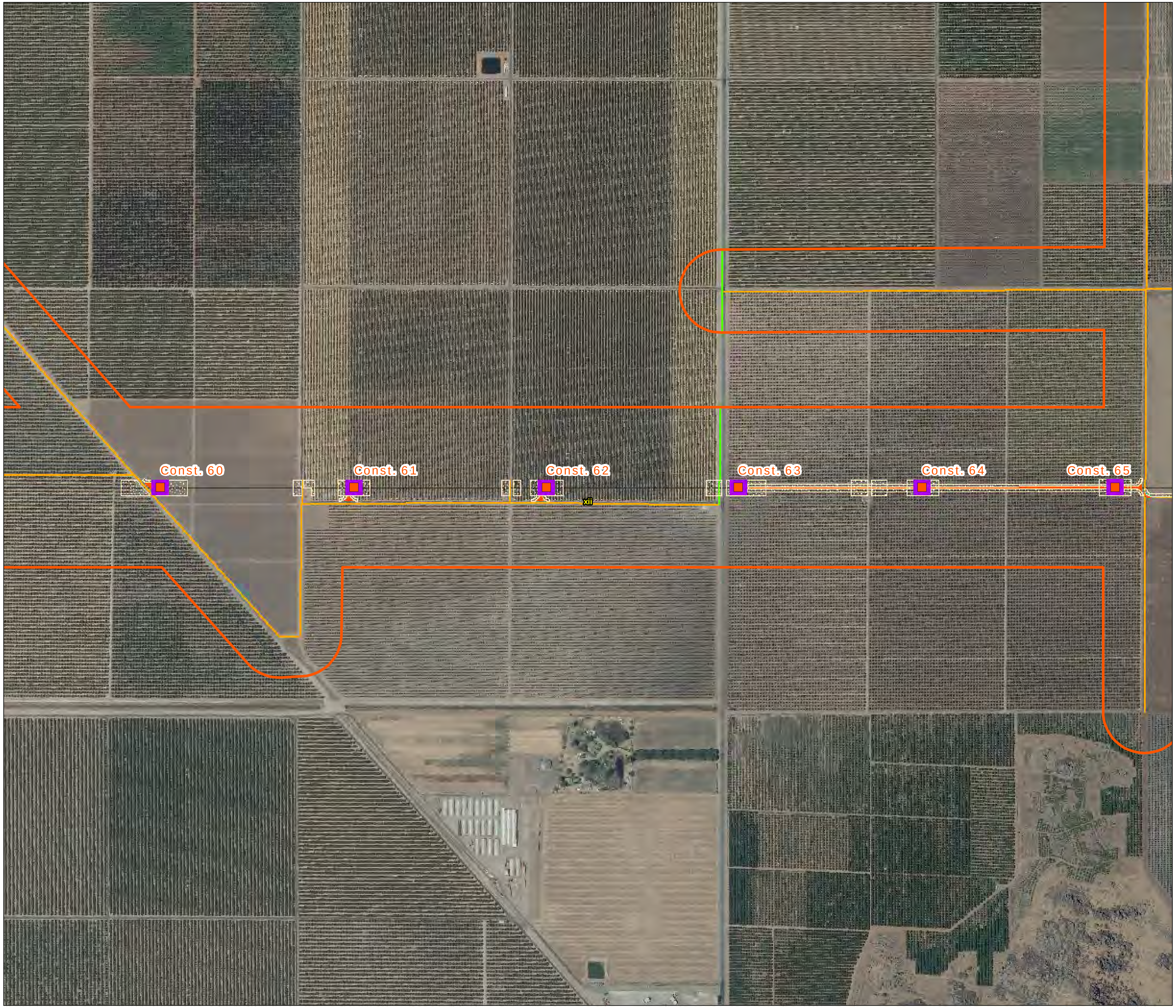
Appendix B
Figure B-1 (xii)
Cross Valley Line Transmission Project



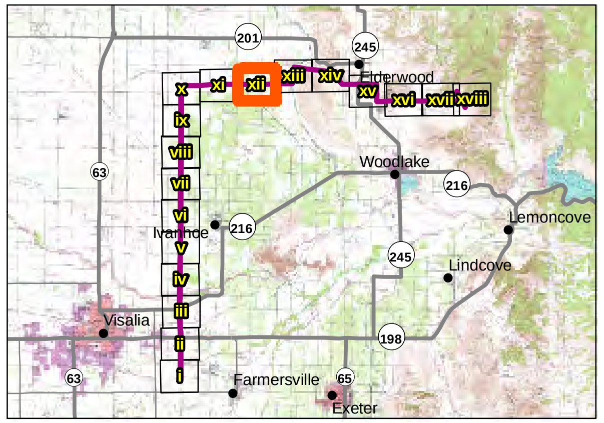
HCP Planning Area
Cross Valley Line
Roads and Travel Routes
No Improvement Construction use
All Categories of Improvement
Off Road Travel Route
New Design Road
Graded Slope
Clear Areas
Crane Pad
Wire Setup Areas
Structure Work Area, General Disturbance Area, and Guard Pole
Structure Replacement Work Area

Drainage Features
Ditch
Mac Drain
Overland Crossing
Pipe
Rip Rap
Water Bar

N
W E
S

0 200 400 800
Feet

Source: ESRI 2010; SCE 3/19/2013; NAIP 2010



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Habitat Conservation Plan

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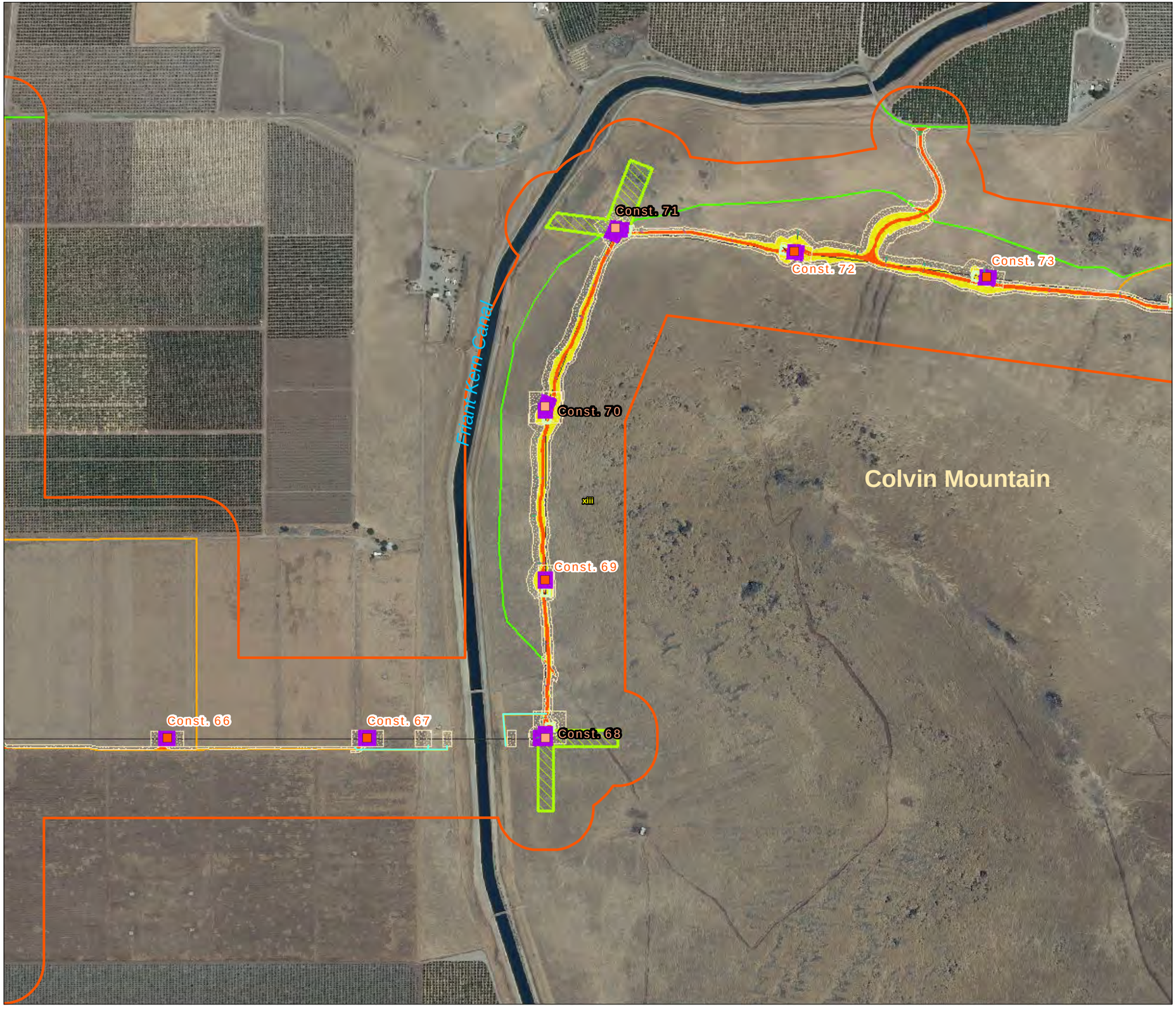
Appendix B
Figure B-1 (xiii)
Cross Valley Line Transmission Project



Drainage Features
- Ditch
- Mac Drain
- Overland Crossing
- Pipe
- Rip Rap
- Water Bar

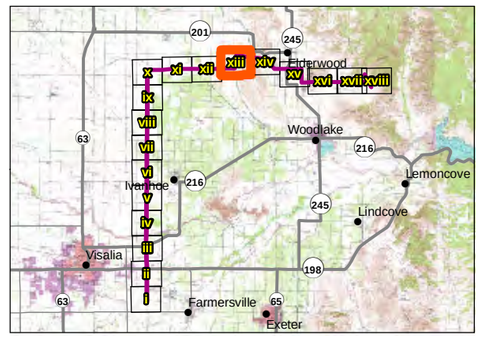
- HCP Planning Area
- Cross Valley Line

Roads and Travel Routes
- No Improvement Construction use
- All Categories of Improvement
- Off Road Travel Route
- New Design Road
- Graded Slope
- Clear Areas
- Crane Pad
- Wire Setup Areas
- Structure Work Area, General Disturbance Area, and Guard Pole
- Structure Replacement Work Area

N W E S

0 200 400 800
Feet

Source: ESRI 2010; SCE 3/19/2013; NAIP 2010



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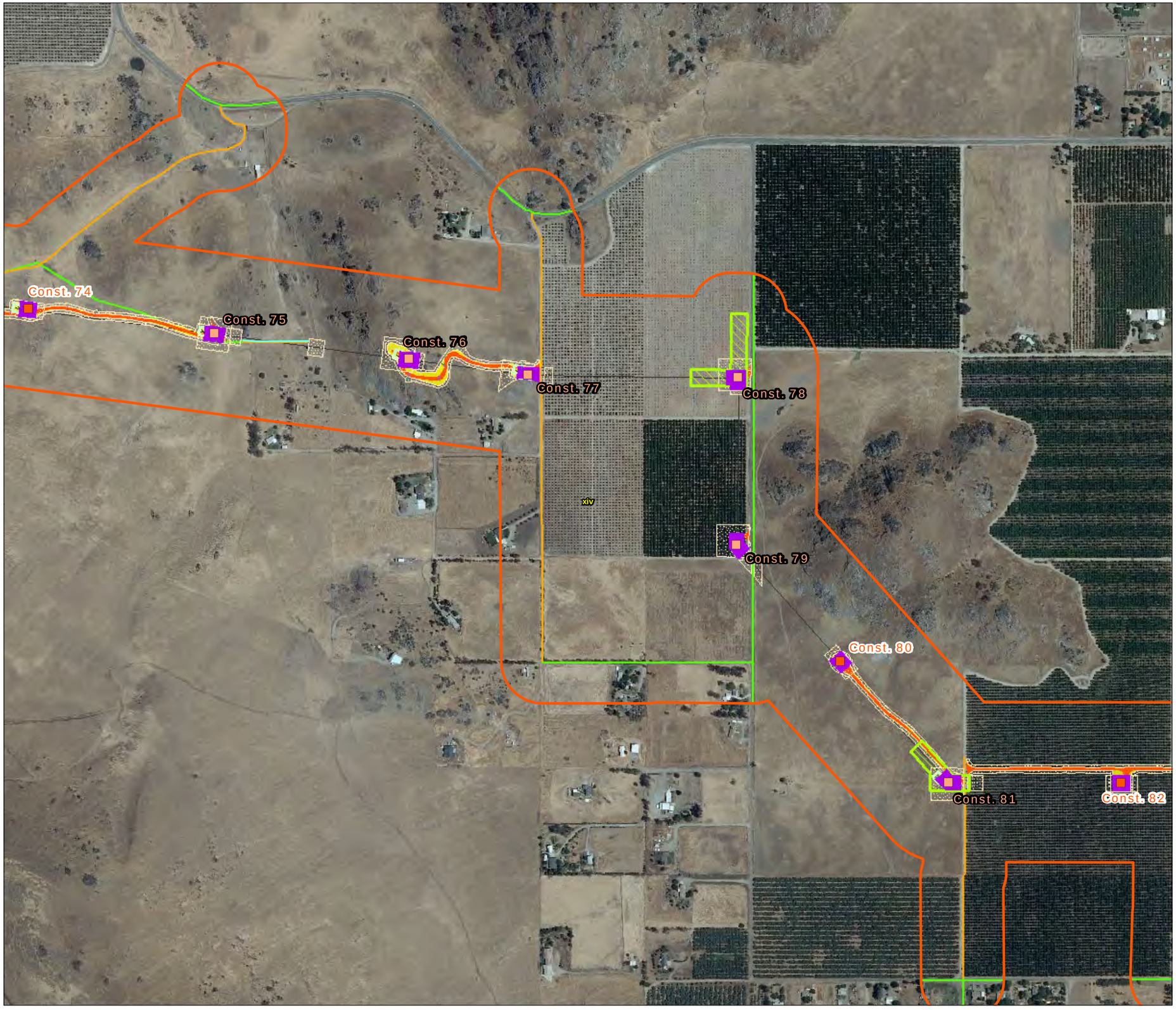
Appendix B
Figure B-1 (xiv)
Cross Valley Line Transmission Project



HCP Planning Area
Cross Valley Line

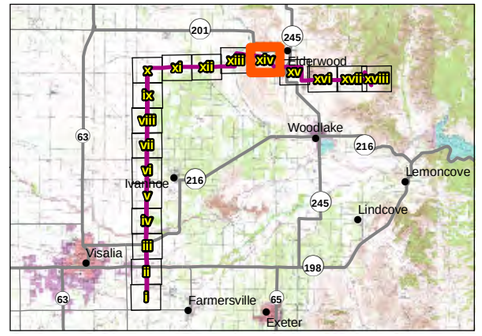
Roads and Travel Routes
- No Improvement Construction use
- All Categories of Improvement
- Off Road Travel Route
- New Design Road
- Graded Slope
- Clear Areas
- Crane Pad
- Wire Setup Areas
- Structure Work Area, General Disturbance Area, and Guard Pole
- Structure Replacement Work Area

Drainage Features
- Ditch
- Mac Drain
- Overland Crossing
- Pipe
- Rip Rap
- Water Bar

N
W E
S

0 200 400 800
Feet

Source: ESRI 2010; SCE 3/19/2013; NAIP 2010



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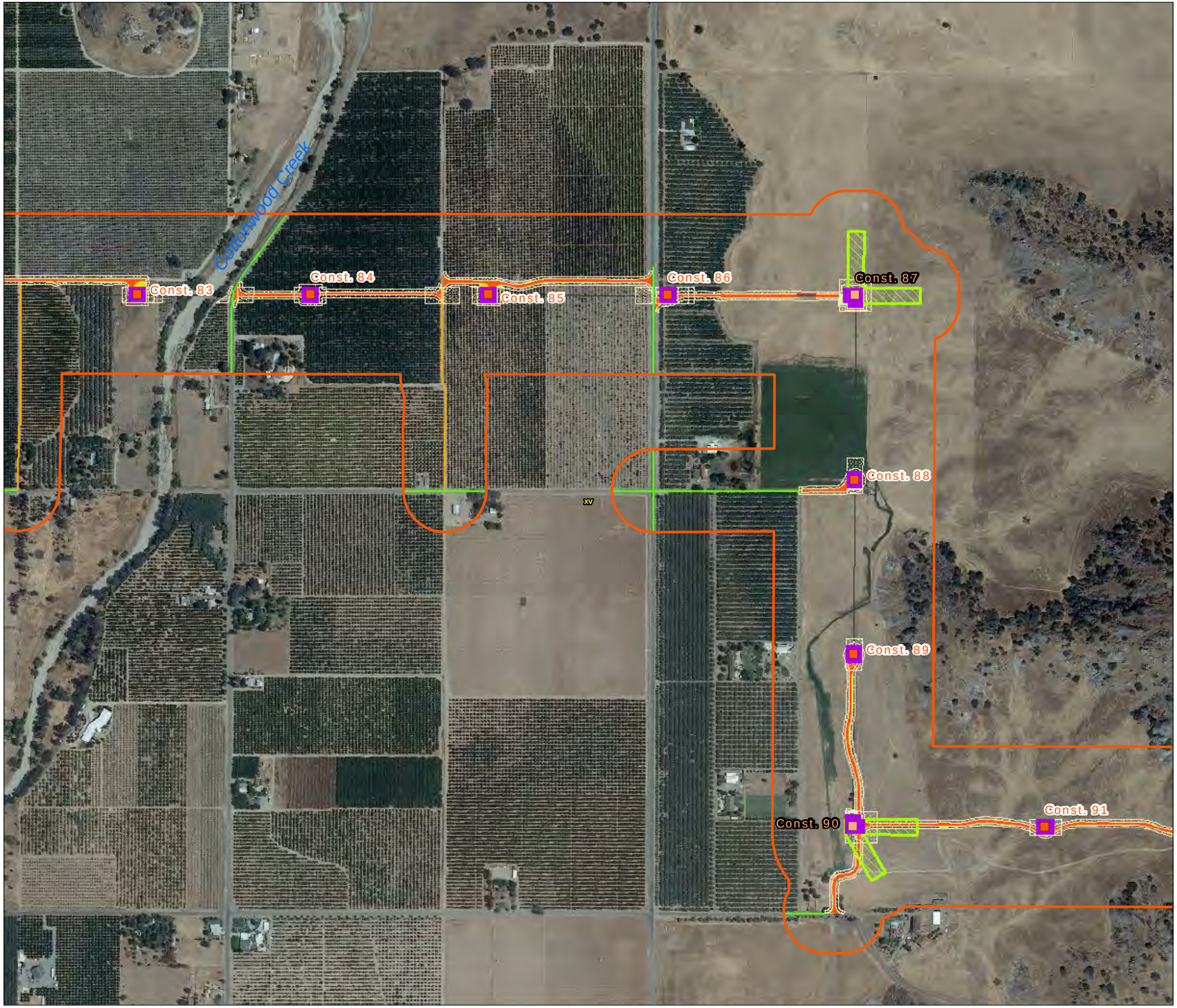
Appendix B
Figure B-1 (xv)
Cross Valley Line
Transmission Project



- HCP Planning Area
- Cross Valley Line

Roads and Travel Routes
- No Improvement Construction use
- All Categories of Improvement
- Off Road Travel Route
- New Design Road

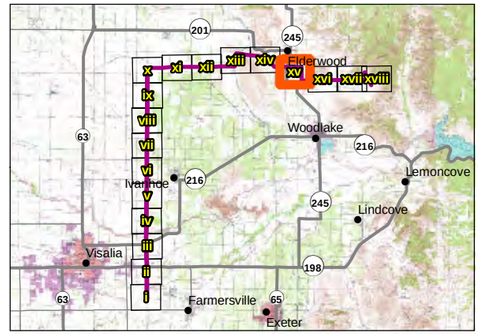
- Graded Slope
- Clear Areas
- Crane Pad
- Wire Setup Areas
- Structure Work Area, General Disturbance Area, and Guard Pole
- Structure Replacement Work Area

Drainage Features
- Ditch
- Mac Drain
- Overland Crossing
- Pipe
- Rip Rap
- Water Bar

N
W E
S

0 200 400 800
Feet

Source: ESRI 2010; SCE 3/19/2013; NAIP 2010



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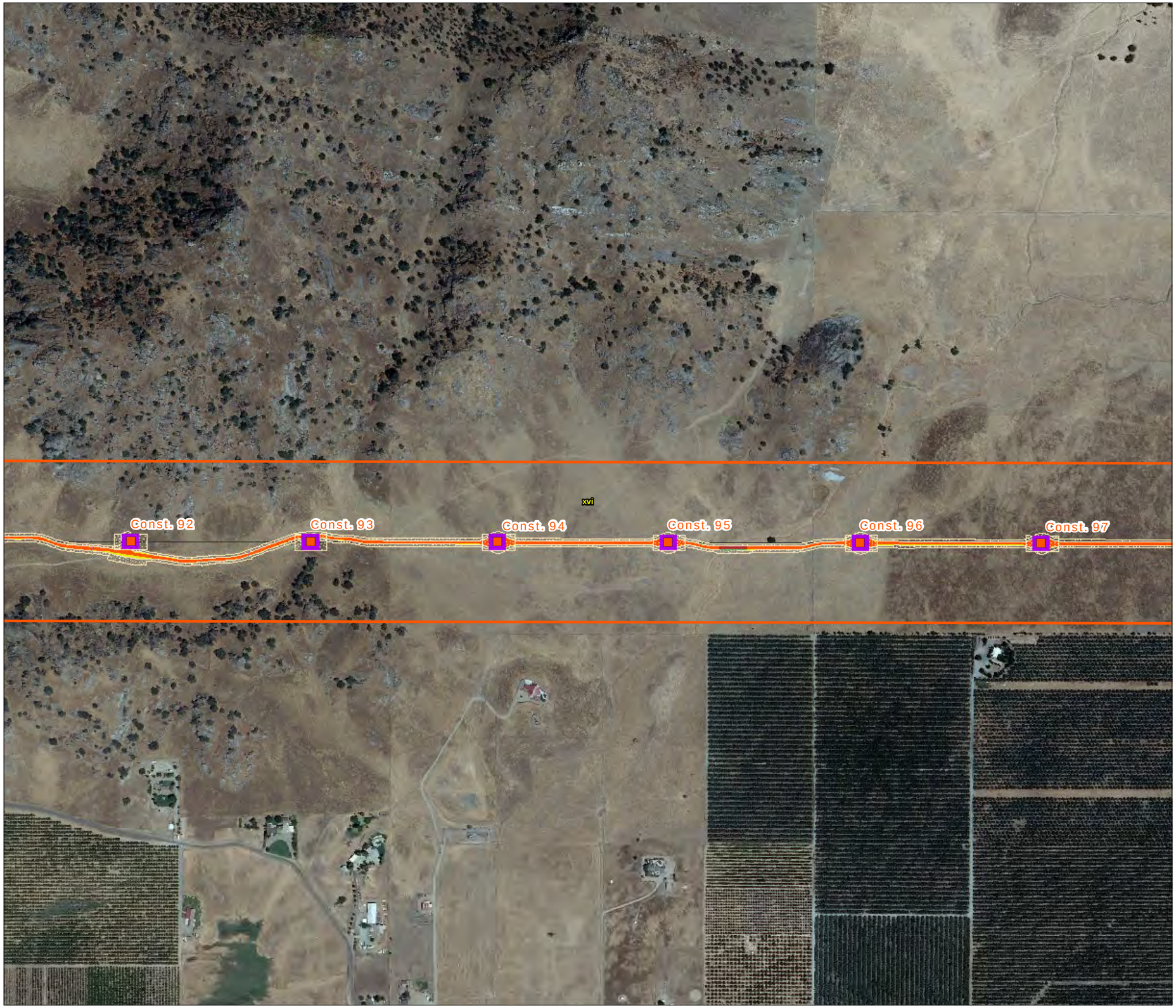


Appendix B
Figure B-1 (xvi)
Cross Valley Line
Transmission Project

HCP Planning Area
Cross Valley Line

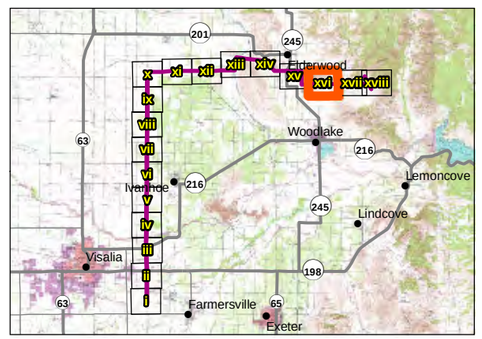
Roads and Travel Routes
No Improvement Construction use
All Categories of Improvement
Off Road Travel Route
New Design Road
Graded Slope
Clear Areas
Crane Pad
Wire Setup Areas
Structure Work Area, General Disturbance Area, and Guard Pole
Structure Replacement Work Area

Drainage Features
Ditch
Mac Drain
Overland Crossing
Pipe
Rip Rap
Water Bar

N
W E
S

0 200 400 800
Feet

Source: ESRI 2010; SCE 3/19/2013; NAIP 2010



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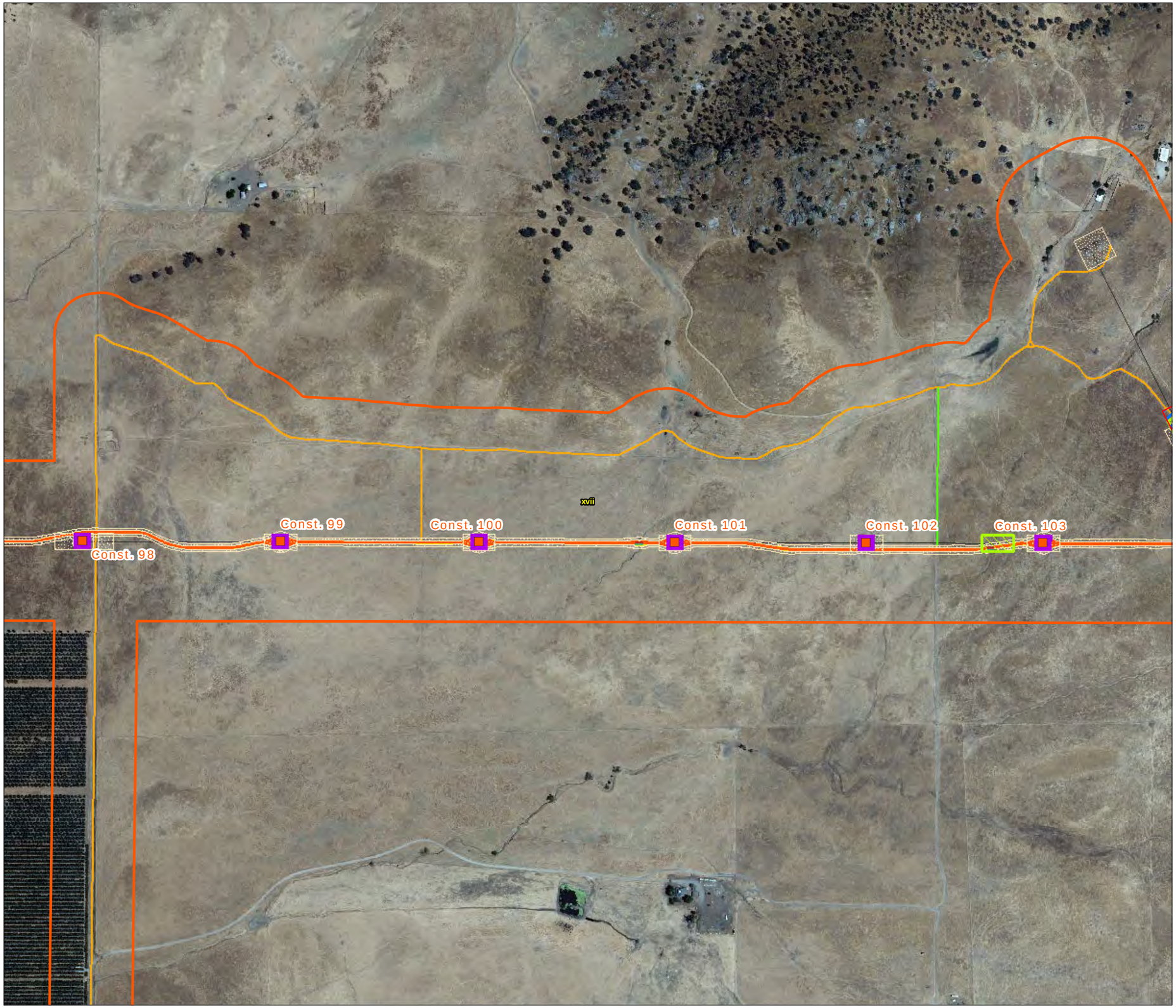


Appendix B
Figure B-1 (xvii)
Cross Valley Line Transmission Project

HCP Planning Area
Cross Valley Line

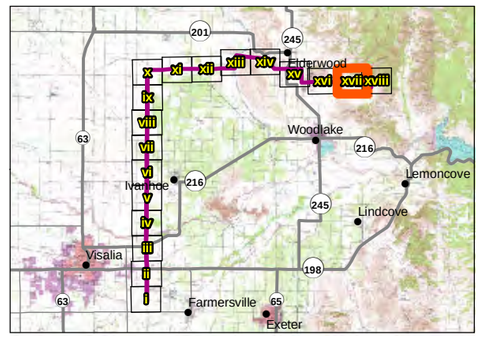
Roads and Travel Routes
No Improvement Construction use
All Categories of Improvement
Off Road Travel Route
New Design Road
Graded Slope
Clear Areas
Crane Pad
Wire Setup Areas
Structure Work Area, General Disturbance Area, and Guard Pole
Structure Replacement Work Area

Drainage Features
Ditch
Mac Drain
Overland Crossing
Pipe
Rip Rap
Water Bar

N
W E
S

0 200 400 800
Feet

Source: ESRI 2010; SCE 3/19/2013; NAIP 2010



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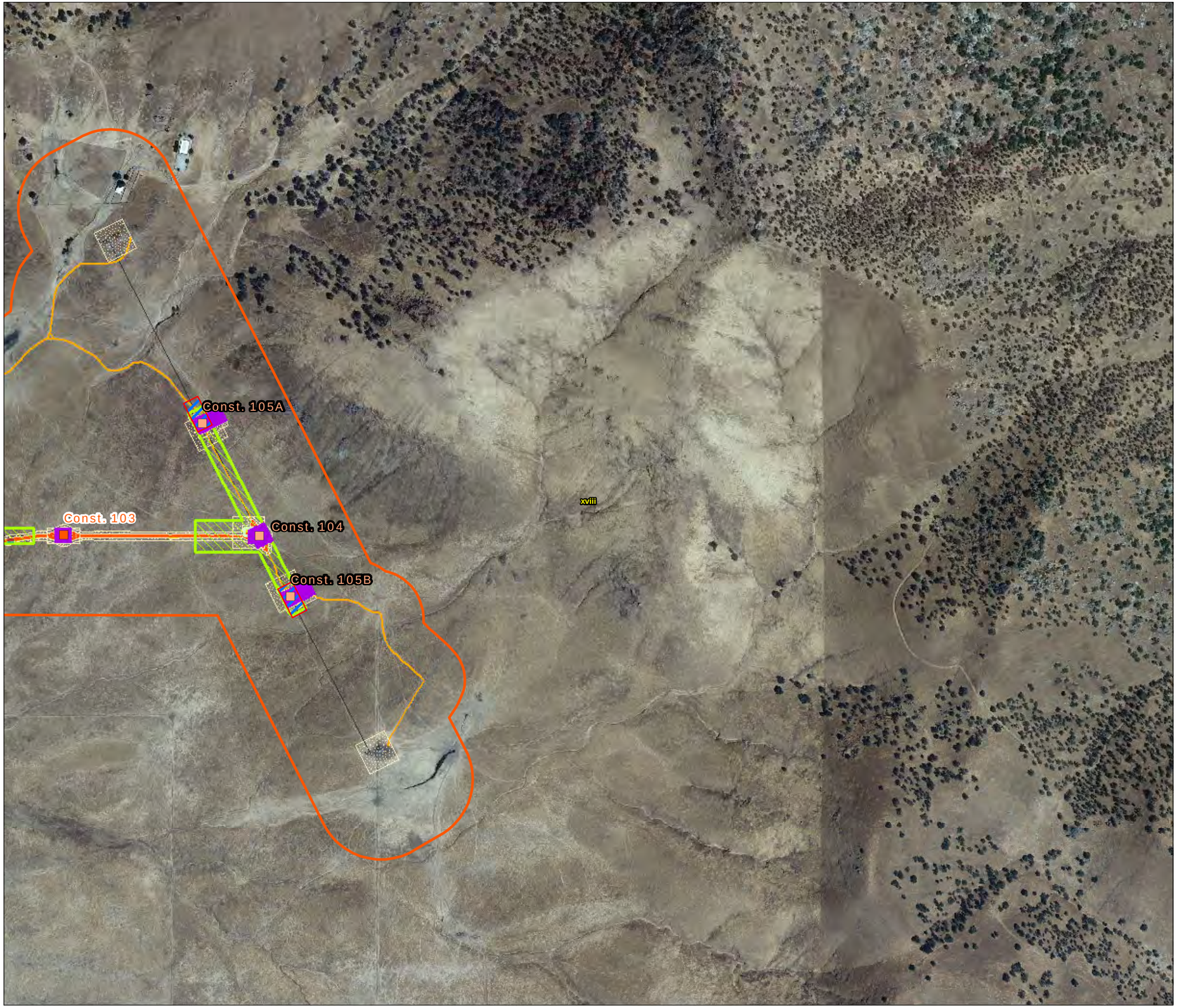
Appendix B
Figure B-1 (xviii)
Cross Valley Line Transmission Project



- HCP Planning Area
- Cross Valley Line

Roads and Travel Routes
- No Improvement Construction use
- All Categories of Improvement
- Off Road Travel Route

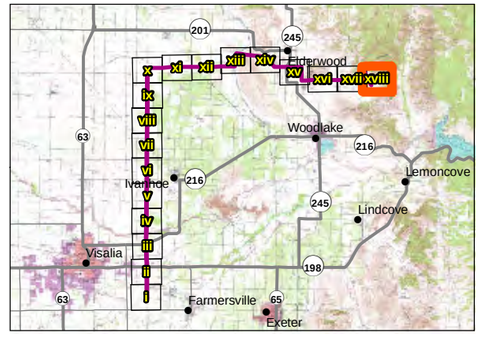
- New Design Road
- Graded Slope
- Clear Areas
- Crane Pad
- Wire Setup Areas
- Structure Work Area, General Disturbance Area, and Guard Pole
- Structure Replacement Work Area

Drainage Features
- Ditch
- Mac Drain
- Overland Crossing
- Pipe
- Rip Rap
- Water Bar

N
W E
S

0 200 400 800
Feet

Source: ESRI 2010; SCE 3/19/2013; NAIP 2010



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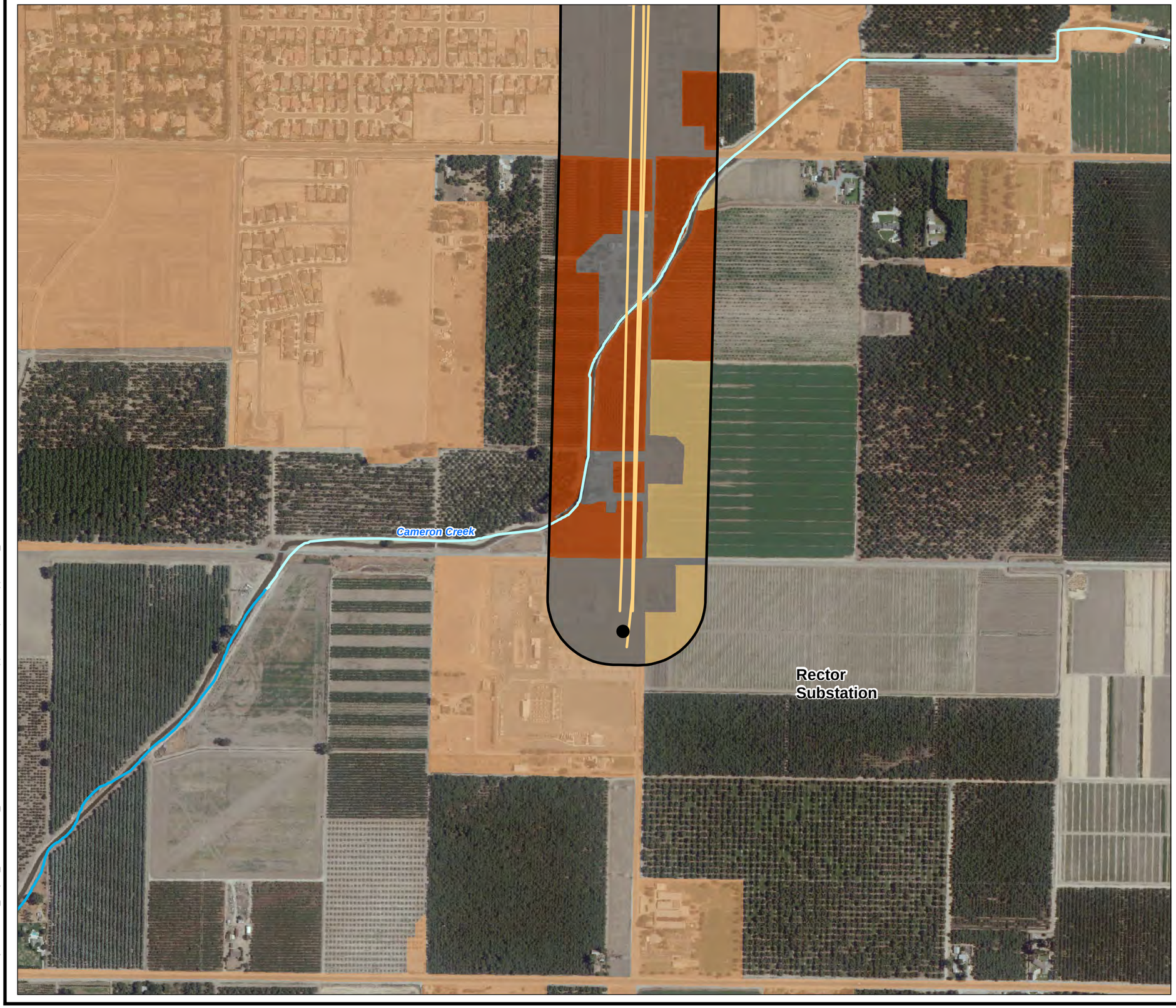
Appendix B
Figure B-2 (i)
Cross Valley Line Transmission Project



- Cross Valley Line
- HCP Planning Area

NHD Stream Code

- Canal/Ditch: Aqueduct
- Artificial Path
- Canal/Ditch
- Connector
- Stream/River: Intermittent
- Stream/River: Perennial

Land Cover - Terrestrial

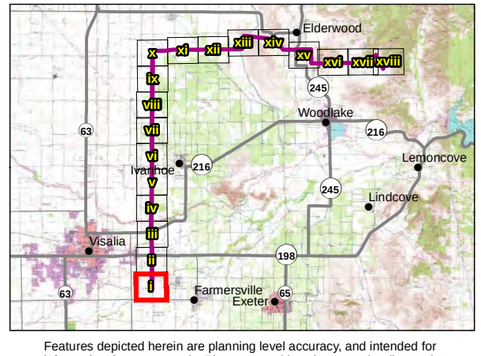
- Agricultural - Orchard
- Agricultural - Row/Field Crops
- Agricultural - Vineyards
- Annual Grassland
- Developed
- Riparian Forest
- Developed DWR (2007)

Notes: Land Cover (Terrestrial) results are based on surveys conducted during 2010. Due to the scale of the map, the distribution symbology is a graphic representation of actual occurrence area

N
W E
S

0 250 500 1,000
Feet

Source: ESRI 2010; SCE 2/26/2013, Quad Knopf 2010



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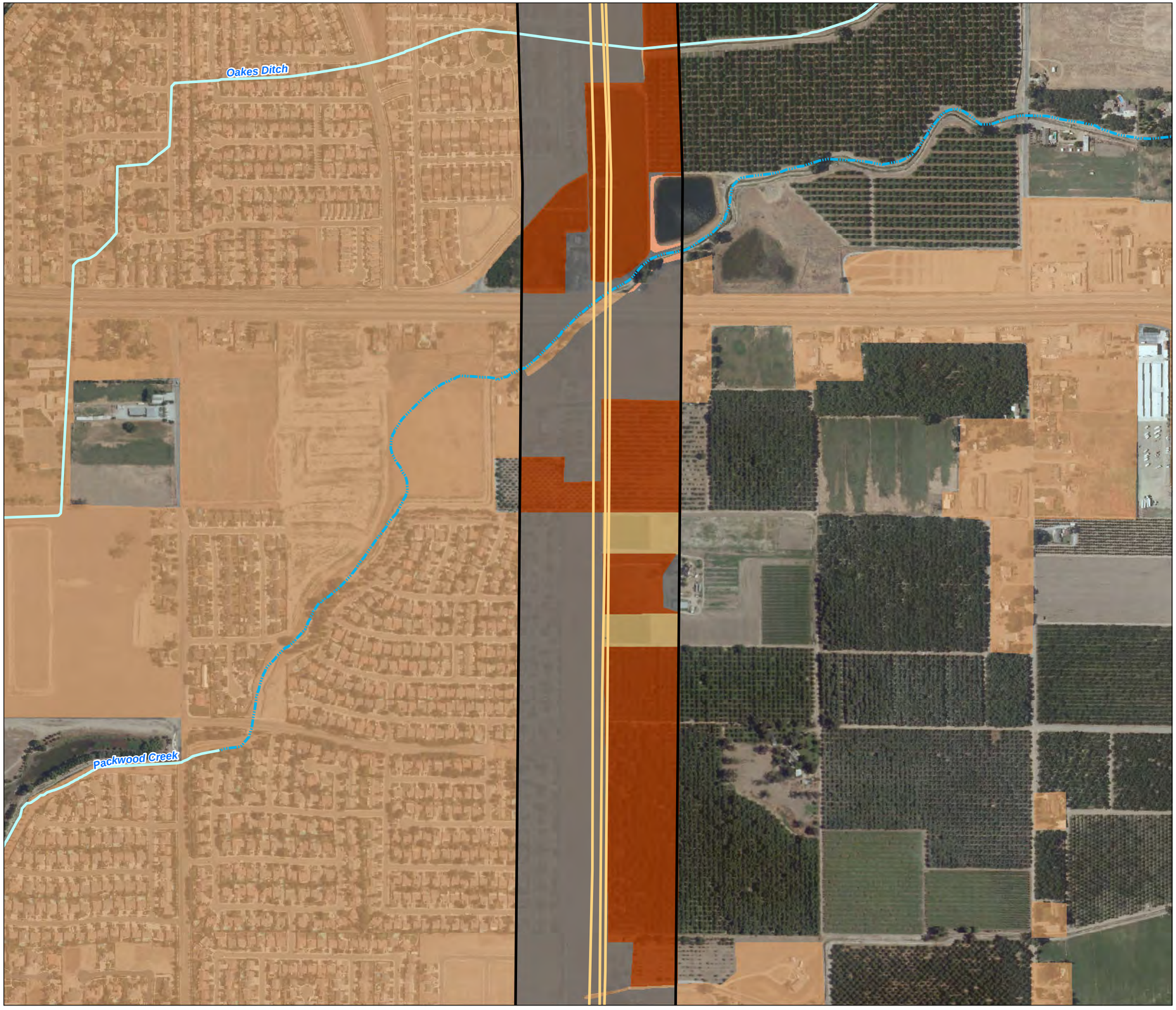


Appendix B
Figure B-2 (ii)
Cross Valley Line Transmission Project

- Cross Valley Line
- HCP Planning Area

NHD Stream Code

- Canal/Ditch: Aqueduct
- Artificial Path
- Canal/Ditch
- Connector
- Stream/River: Intermittent
- Stream/River: Perennial

Land Cover - Terrestrial

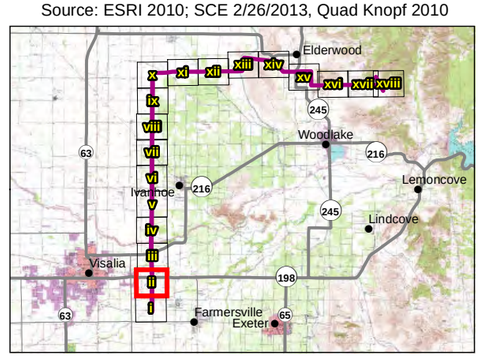
- Agricultural - Orchard
- Agricultural - Row/Field Crops
- Agricultural - Vineyards
- Annual Grassland
- Developed
- Riparian Forest
- Developed DWR (2007)

Notes: Land Cover (Terrestrial) results are based on surveys conducted during 2010. Due to the scale of the map, the distribution symbology is a graphic representation of actual occurrence area

N W E S

0 250 500 1,000 Feet

Source: ESRI 2010; SCE 2/26/2013, Quad Knopf 2010



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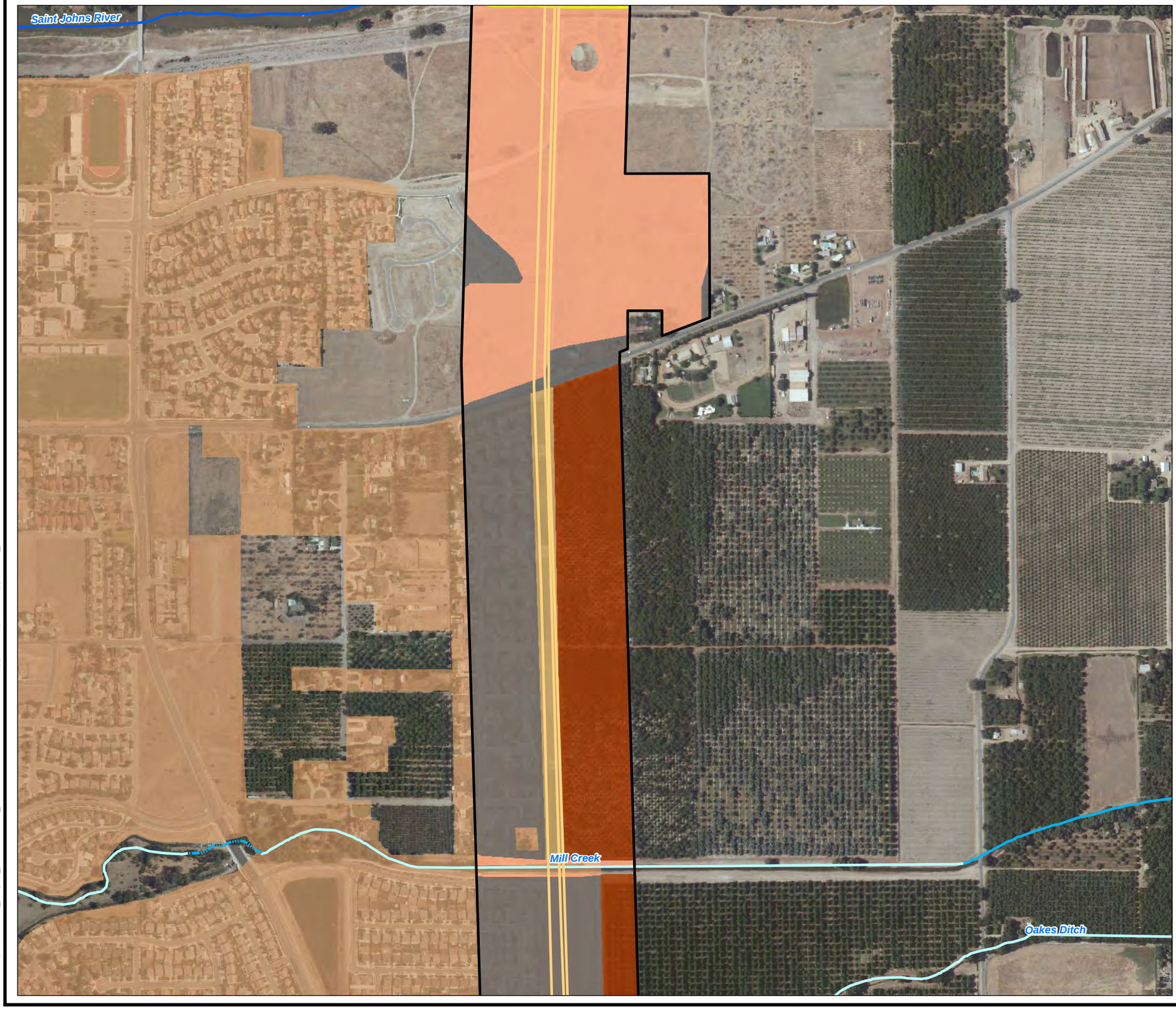


Appendix B
Figure B-2 (iii)
Cross Valley Line Transmission Project

- Cross Valley Line
- HCP Planning Area

NHD Stream Code

- Canal/Ditch: Aqueduct
- Artificial Path
- Canal/Ditch
- Connector
- Stream/River: Intermittent
- Stream/River: Perennial

Land Cover - Terrestrial

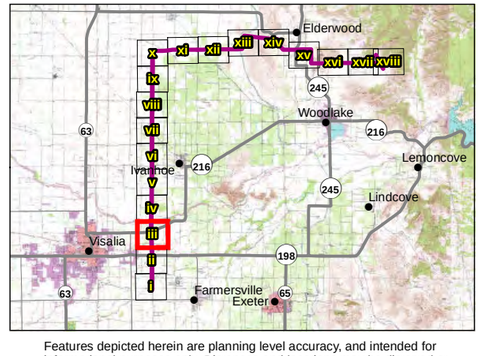
- Agricultural - Orchard
- Agricultural - Row/Field Crops
- Agricultural - Vineyards
- Annual Grassland
- Developed
- Riparian Forest
- Developed DWR (2007)

Notes: Land Cover (Terrestrial) results are based on surveys conducted during 2010. Due to the scale of the map, the distribution symbology is a graphic representation of actual occurrence area

N W E S

0 250 500 1,000 Feet

Source: ESRI 2010; SCE 2/26/2013, Quad Knopf 2010



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Appendix B
Figure B-2 (iv)
Cross Valley Line Transmission Project

- Cross Valley Line
- HCP Planning Area

NHD Stream Code

- Canal/Ditch: Aqueduct
- Artificial Path
- Canal/Ditch
- Connector
- Stream/River: Intermittent
- Stream/River: Perennial

Land Cover - Terrestrial

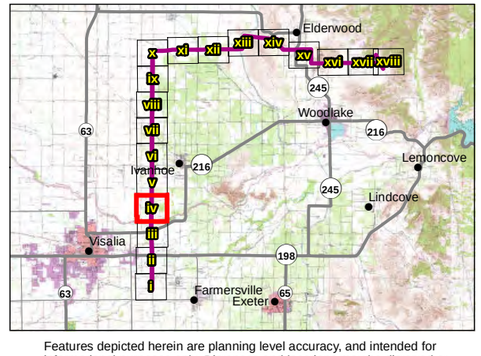
- Agricultural - Orchard
- Agricultural - Row/Field Crops
- Agricultural - Vineyards
- Annual Grassland
- Developed
- Riparian Forest
- Developed DWR (2007)

Notes: Land Cover (Terrestrial) results are based on surveys conducted during 2010. Due to the scale of the map, the distribution symbology is a graphic representation of actual occurrence area

N
W E
S

0 250 500 1,000
Feet

Source: ESRI 2010; SCE 2/26/2013, Quad Knopf 2010



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Appendix B
Figure B-2 (v)
Cross Valley Line Transmission Project

- Cross Valley Line
- HCP Planning Area

NHD Stream Code

- Canal/Ditch: Aqueduct
- Artificial Path
- Canal/Ditch
- Connector
- Stream/River: Intermittent
- Stream/River: Perennial

Land Cover - Terrestrial

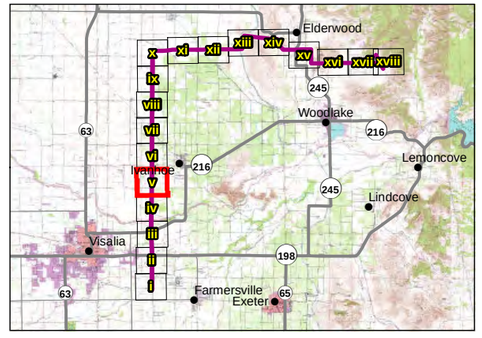
- Agricultural - Orchard
- Agricultural - Row/Field Crops
- Agricultural - Vineyards
- Annual Grassland
- Developed
- Riparian Forest
- Developed DWR (2007)

Notes: Land Cover (Terrestrial) results are based on surveys conducted during 2010. Due to the scale of the map, the distribution symbology is a graphic representation of actual occurrence area

N
W E
S

0 250 500 1,000
Feet

Source: ESRI 2010; SCE 2/26/2013, Quad Knopf 2010



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Appendix B
Figure B-2 (vi)
Cross Valley Line Transmission Project

- Cross Valley Line
- HCP Planning Area

NHD Stream Code

- Canal/Ditch: Aqueduct
- Artificial Path
- Canal/Ditch
- Connector
- Stream/River: Intermittent
- Stream/River: Perennial

Land Cover - Terrestrial

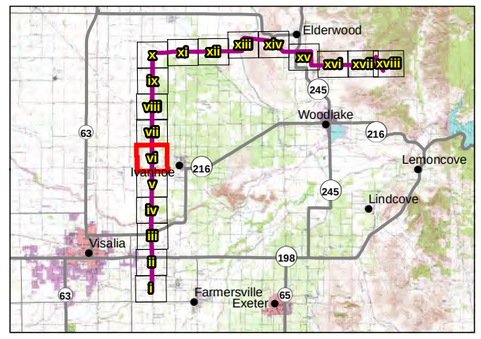
- Agricultural - Orchard
- Agricultural - Row/Field Crops
- Agricultural - Vineyards
- Annual Grassland
- Developed
- Riparian Forest
- Developed DWR (2007)

Notes: Land Cover (Terrestrial) results are based on surveys conducted during 2010. Due to the scale of the map, the distribution symbology is a graphic representation of actual occurrence area

N W E S

0 250 500 1,000 Feet

Source: ESRI 2010; SCE 2/26/2013, Quad Knopf 2010



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Appendix B
Figure B-2 (vii)
Cross Valley Line Transmission Project

Cross Valley Line

HCP Planning Area

NHD Stream Code

Canal/Ditch: Aqueduct

Artificial Path

Canal/Ditch

Connector

Stream/River: Intermittent

Stream/River: Perennial

Land Cover - Terrestrial

Agricultural - Orchard

Agricultural - Row/Field Crops

Agricultural - Vineyards

Annual Grassland

Developed

Riparian Forest

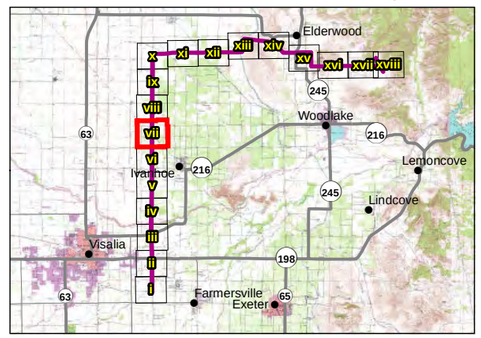
Developed DWR (2007)

Notes: Land Cover (Terrestrial) results are based on surveys conducted during 2010. Due to the scale of the map, the distribution symbology is a graphic representation of actual occurrence area

N W E S

0 250 500 1,000 Feet

Source: ESRI 2010; SCE 2/26/2013, Quad Knopf 2010



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Appendix B
Figure B-2 (viii)
Cross Valley Line Transmission Project

Cross Valley Line

HCP Planning Area

NHD Stream Code

Canal/Ditch: Aqueduct

Artificial Path

Canal/Ditch

Connector

Stream/River: Intermittent

Stream/River: Perennial

Land Cover - Terrestrial

Agricultural - Orchard

Agricultural - Row/Field Crops

Agricultural - Vineyards

Annual Grassland

Developed

Riparian Forest

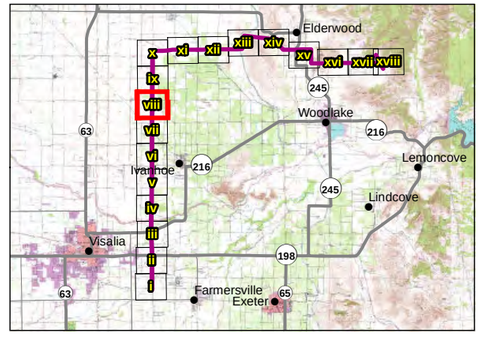
Developed DWR (2007)

Notes: Land Cover (Terrestrial) results are based on surveys conducted during 2010. Due to the scale of the map, the distribution symbology is a graphic representation of actual occurrence area

N
W E
S

0 250 500 1,000
Feet

Source: ESRI 2010; SCE 2/26/2013, Quad Knopf 2010



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Appendix B
Figure B-2 (ix)
Cross Valley Line Transmission Project

Cross Valley Line

HCP Planning Area

NHD Stream Code

Canal/Ditch: Aqueduct

Artificial Path

Canal/Ditch

Connector

Stream/River: Intermittent

Stream/River: Perennial

Land Cover - Terrestrial

Agricultural - Orchard

Agricultural - Row/Field Crops

Agricultural - Vineyards

Annual Grassland

Developed

Riparian Forest

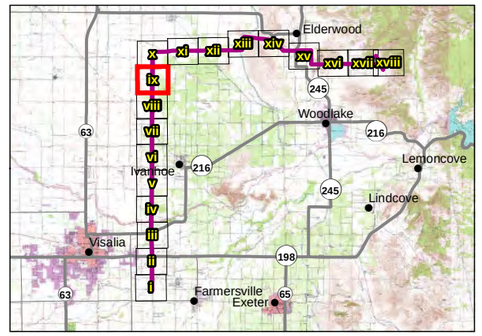
Developed DWR (2007)

Notes: Land Cover (Terrestrial) results are based on surveys conducted during 2010. Due to the scale of the map, the distribution symbology is a graphic representation of actual occurrence area

N W E S

0 250 500 1,000 Feet

Source: ESRI 2010; SCE 2/26/2013, Quad Knopf 2010



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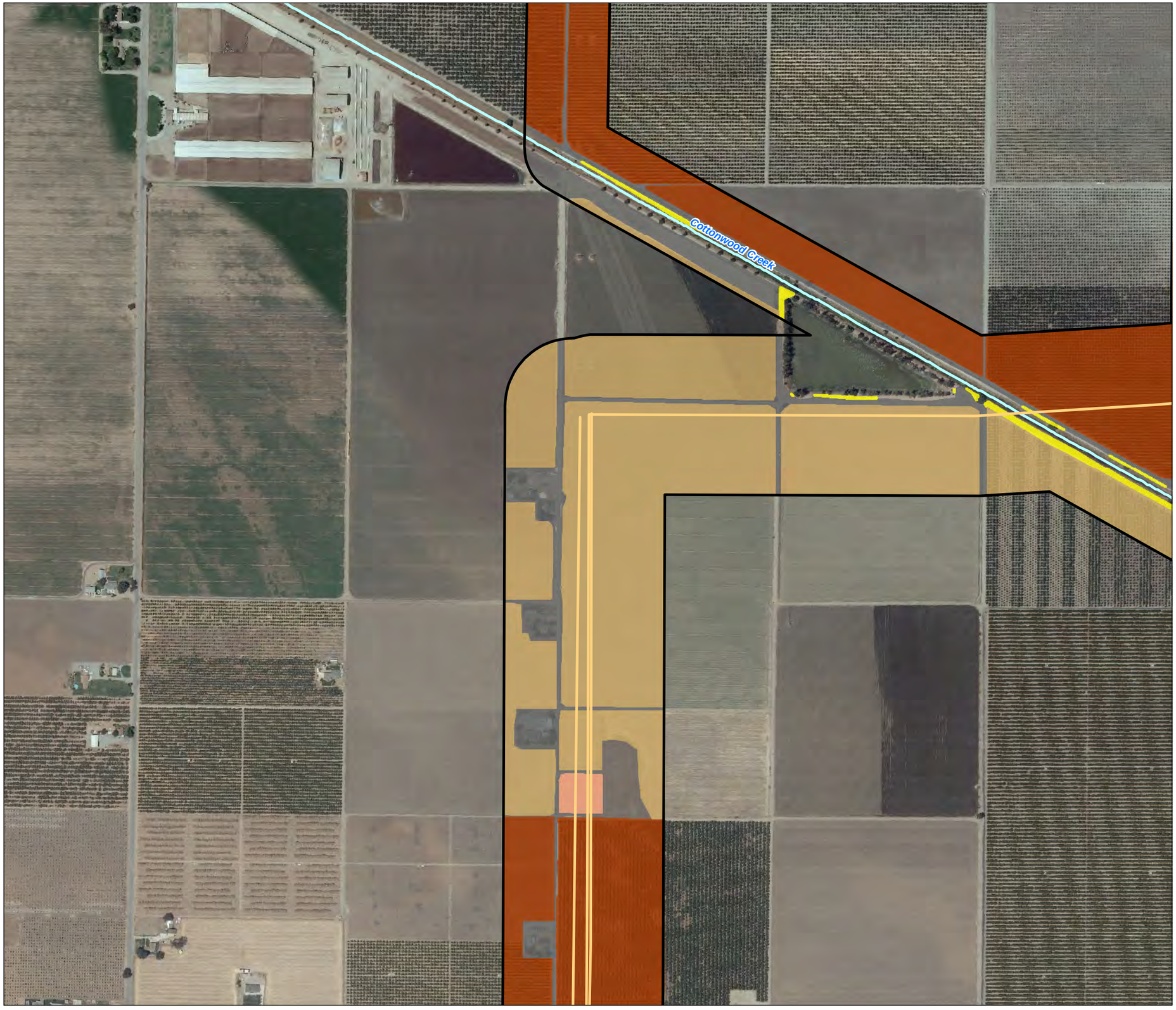
Appendix B
Figure B-2 (x)
Cross Valley Line Transmission Project



- Cross Valley Line
- HCP Planning Area

NHD Stream Code

- Canal/Ditch: Aqueduct
- Artificial Path
- Canal/Ditch
- Connector
- Stream/River: Intermittent
- Stream/River: Perennial

Land Cover - Terrestrial

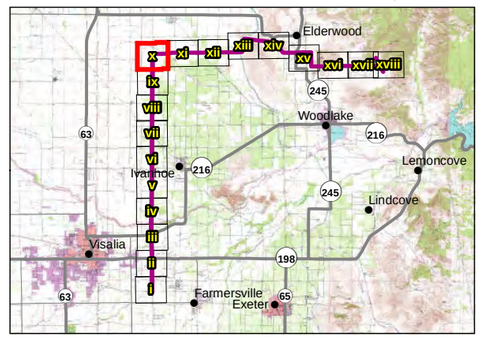
- Agricultural - Orchard
- Agricultural - Row/Field Crops
- Agricultural - Vineyards
- Annual Grassland
- Developed
- Riparian Forest
- Developed DWR (2007)

Notes: Land Cover (Terrestrial) results are based on surveys conducted during 2010. Due to the scale of the map, the distribution symbology is a graphic representation of actual occurrence area

N W E S

0 250 500 1,000 Feet

Source: ESRI 2010; SCE 2/26/2013, Quad Knopf 2010



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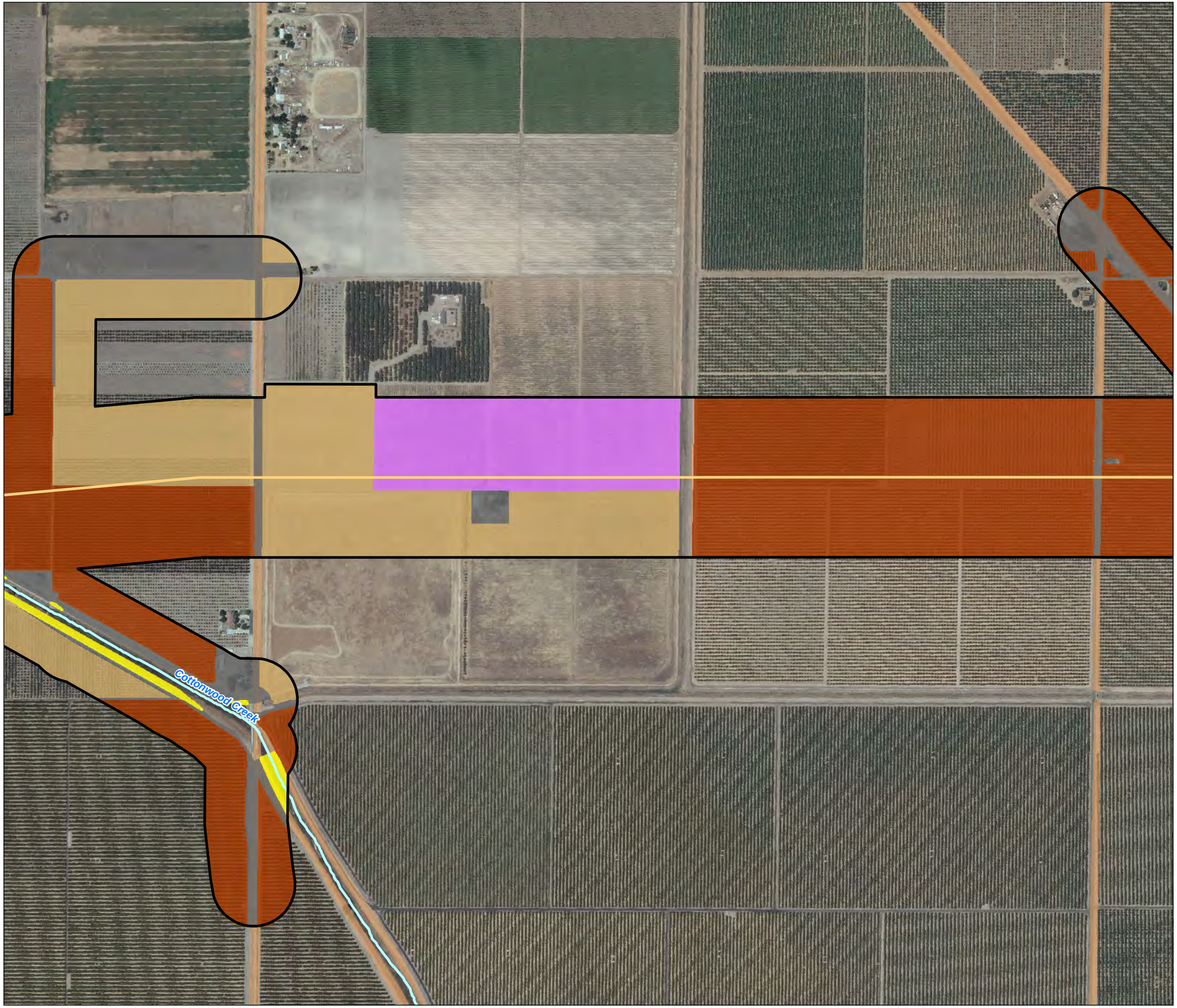
Appendix B
Figure B-2 (xi)
Cross Valley Line Transmission Project



- Cross Valley Line
- HCP Planning Area

NHD Stream Code

- Canal/Ditch: Aqueduct
- Artificial Path
- Canal/Ditch
- Connector
- Stream/River: Intermittent
- Stream/River: Perennial

Land Cover - Terrestrial

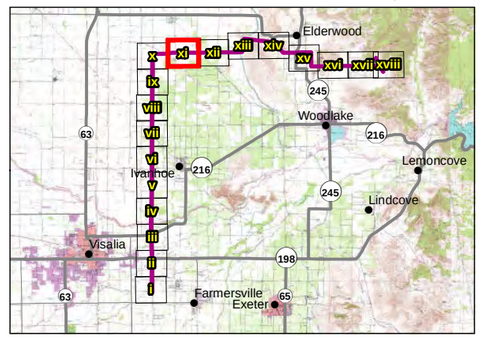
- Agricultural - Orchard
- Agricultural - Row/Field Crops
- Agricultural - Vineyards
- Annual Grassland
- Developed
- Riparian Forest
- Developed DWR (2007)

Notes: Land Cover (Terrestrial) results are based on surveys conducted during 2010. Due to the scale of the map, the distribution symbology is a graphic representation of actual occurrence area

N W E S

0 250 500 1,000 Feet

Source: ESRI 2010; SCE 2/26/2013, Quad Knopf 2010



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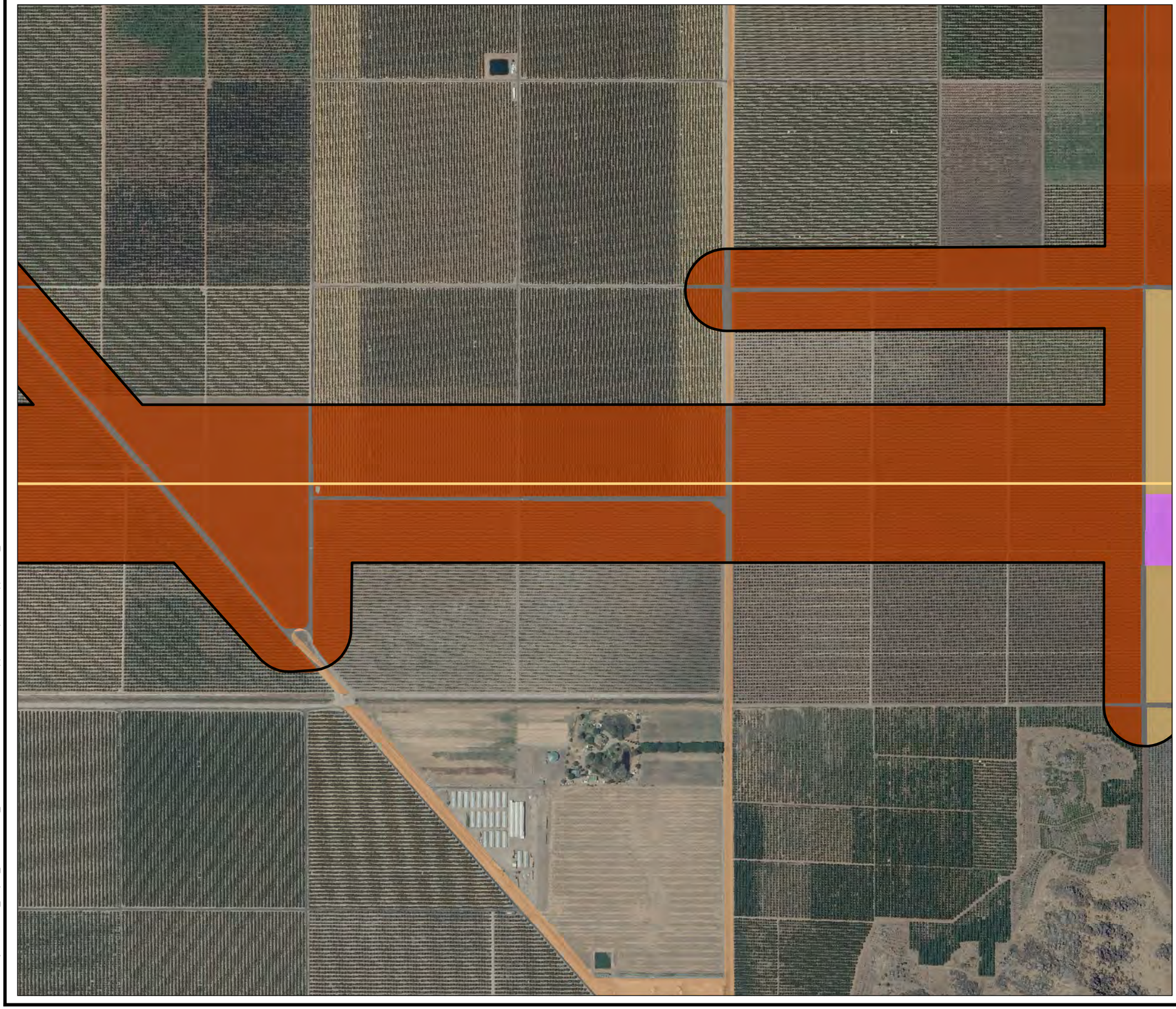


Appendix B
Figure B-2 (xii)
Cross Valley Line Transmission Project

- Cross Valley Line
- HCP Planning Area

NHD Stream Code

- Canal/Ditch: Aqueduct
- Artificial Path
- Canal/Ditch
- Connector
- Stream/River: Intermittent
- Stream/River: Perennial

Land Cover - Terrestrial

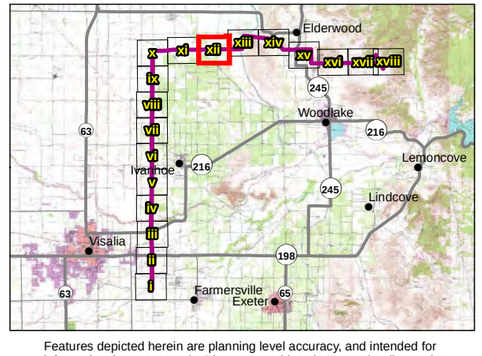
- Agricultural - Orchard
- Agricultural - Row/Field Crops
- Agricultural - Vineyards
- Annual Grassland
- Developed
- Riparian Forest
- Developed DWR (2007)

Notes: Land Cover (Terrestrial) results are based on surveys conducted during 2010. Due to the scale of the map, the distribution symbology is a graphic representation of actual occurrence area

N
W E
S

0 250 500 1,000
Feet

Source: ESRI 2010; SCE 2/26/2013, Quad Knopf 2010



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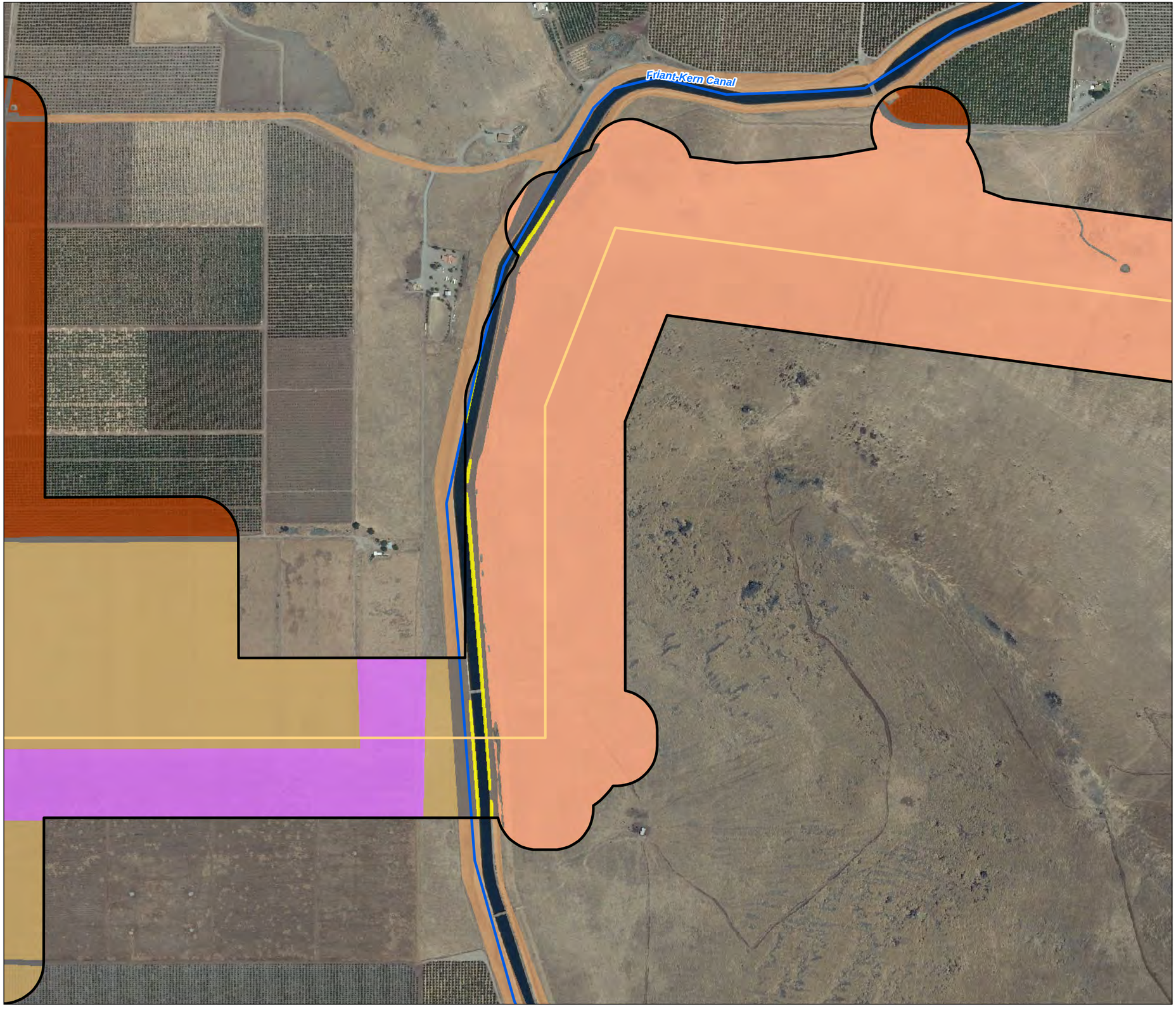
Appendix B
Figure B-2 (xiii)
Cross Valley Line Transmission Project



- Cross Valley Line
- HCP Planning Area

NHD Stream Code

- Canal/Ditch: Aqueduct
- Artificial Path
- Canal/Ditch
- Connector
- Stream/River: Intermittent
- Stream/River: Perennial

Land Cover - Terrestrial

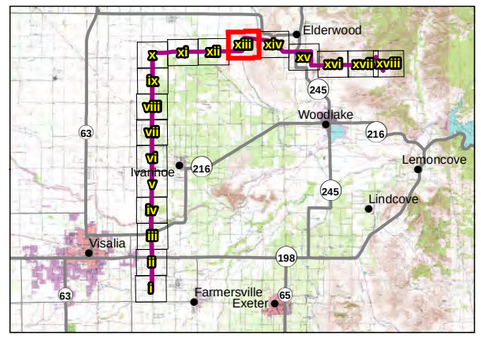
- Agricultural - Orchard
- Agricultural - Row/Field Crops
- Agricultural - Vineyards
- Annual Grassland
- Developed
- Riparian Forest
- Developed DWR (2007)

Notes: Land Cover (Terrestrial) results are based on surveys conducted during 2010. Due to the scale of the map, the distribution symbology is a graphic representation of actual occurrence area

N W E S

0 250 500 1,000 Feet

Source: ESRI 2010; SCE 2/26/2013, Quad Knopf 2010



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Appendix B
Figure B-2 (xiv)
Cross Valley Line Transmission Project

Cross Valley Line

HCP Planning Area

NHD Stream Code

Canal/Ditch: Aqueduct

Artificial Path

Canal/Ditch

Connector

Stream/River: Intermittent

Stream/River: Perennial

Land Cover - Terrestrial

Agricultural - Orchard

Agricultural - Row/Field Crops

Agricultural - Vineyards

Annual Grassland

Developed

Riparian Forest

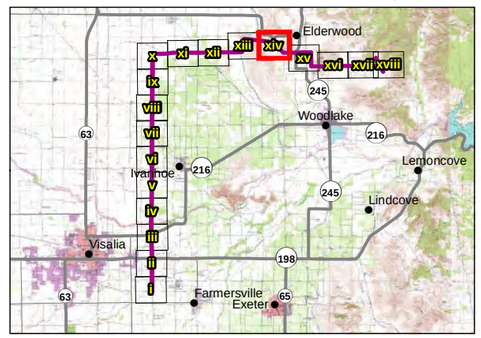
Developed DWR (2007)

Notes: Land Cover (Terrestrial) results are based on surveys conducted during 2010. Due to the scale of the map, the distribution symbology is a graphic representation of actual occurrence area

N W E S

0 250 500 1,000 Feet

Source: ESRI 2010; SCE 2/26/2013, Quad Knopf 2010



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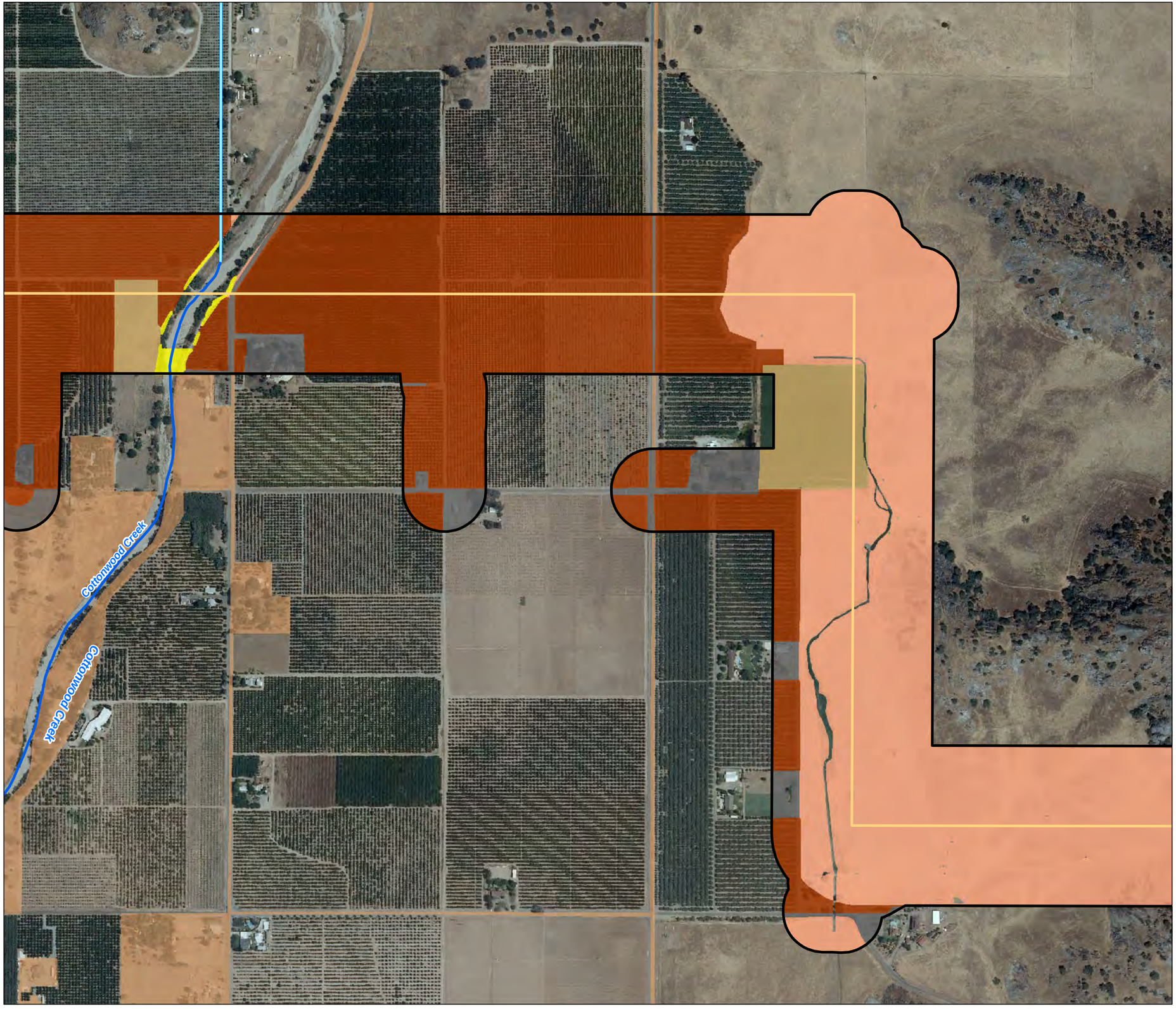
Appendix B
Figure B-2 (xv)
Cross Valley Line Transmission Project



- Cross Valley Line
- HCP Planning Area

NHD Stream Code

- Canal/Ditch: Aqueduct
- Artificial Path
- Canal/Ditch
- Connector
- Stream/River: Intermittent
- Stream/River: Perennial

Land Cover - Terrestrial

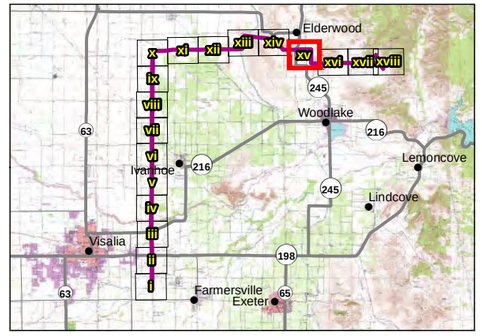
- Agricultural - Orchard
- Agricultural - Row/Field Crops
- Agricultural - Vineyards
- Annual Grassland
- Developed
- Riparian Forest
- Developed DWR (2007)

Notes: Land Cover (Terrestrial) results are based on surveys conducted during 2010. Due to the scale of the map, the distribution symbology is a graphic representation of actual occurrence area

N
W E
S

0 250 500 1,000
Feet

Source: ESRI 2010; SCE 2/26/2013, Quad Knopf 2010



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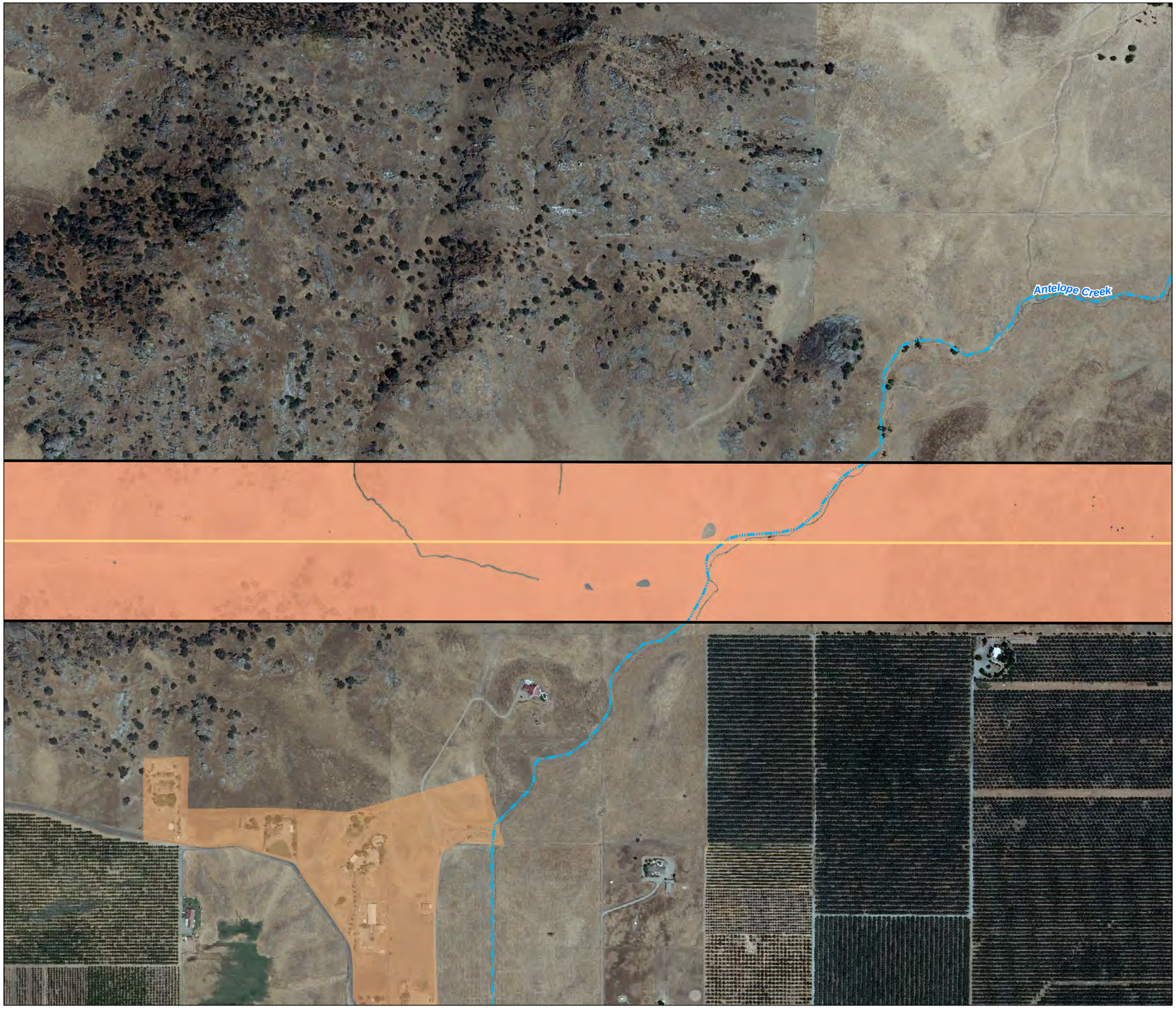
Appendix B
Figure B-2 (xvi)
Cross Valley Line Transmission Project



- Cross Valley Line
- HCP Planning Area

NHD Stream Code

- Canal/Ditch: Aqueduct
- Artificial Path
- Canal/Ditch
- Connector
- Stream/River: Intermittent
- Stream/River: Perennial

Land Cover - Terrestrial

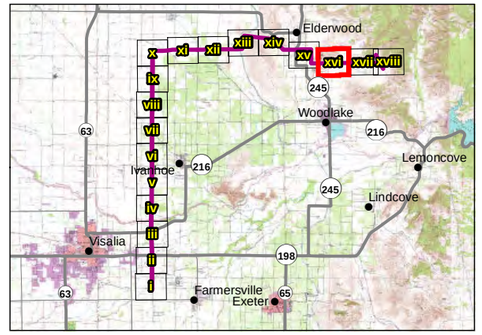
- Agricultural - Orchard
- Agricultural - Row/Field Crops
- Agricultural - Vineyards
- Annual Grassland
- Developed
- Riparian Forest
- Developed DWR (2007)

Notes: Land Cover (Terrestrial) results are based on surveys conducted during 2010. Due to the scale of the map, the distribution symbology is a graphic representation of actual occurrence area

N W E S

0 250 500 1,000 Feet

Source: ESRI 2010; SCE 2/26/2013, Quad Knopf 2010



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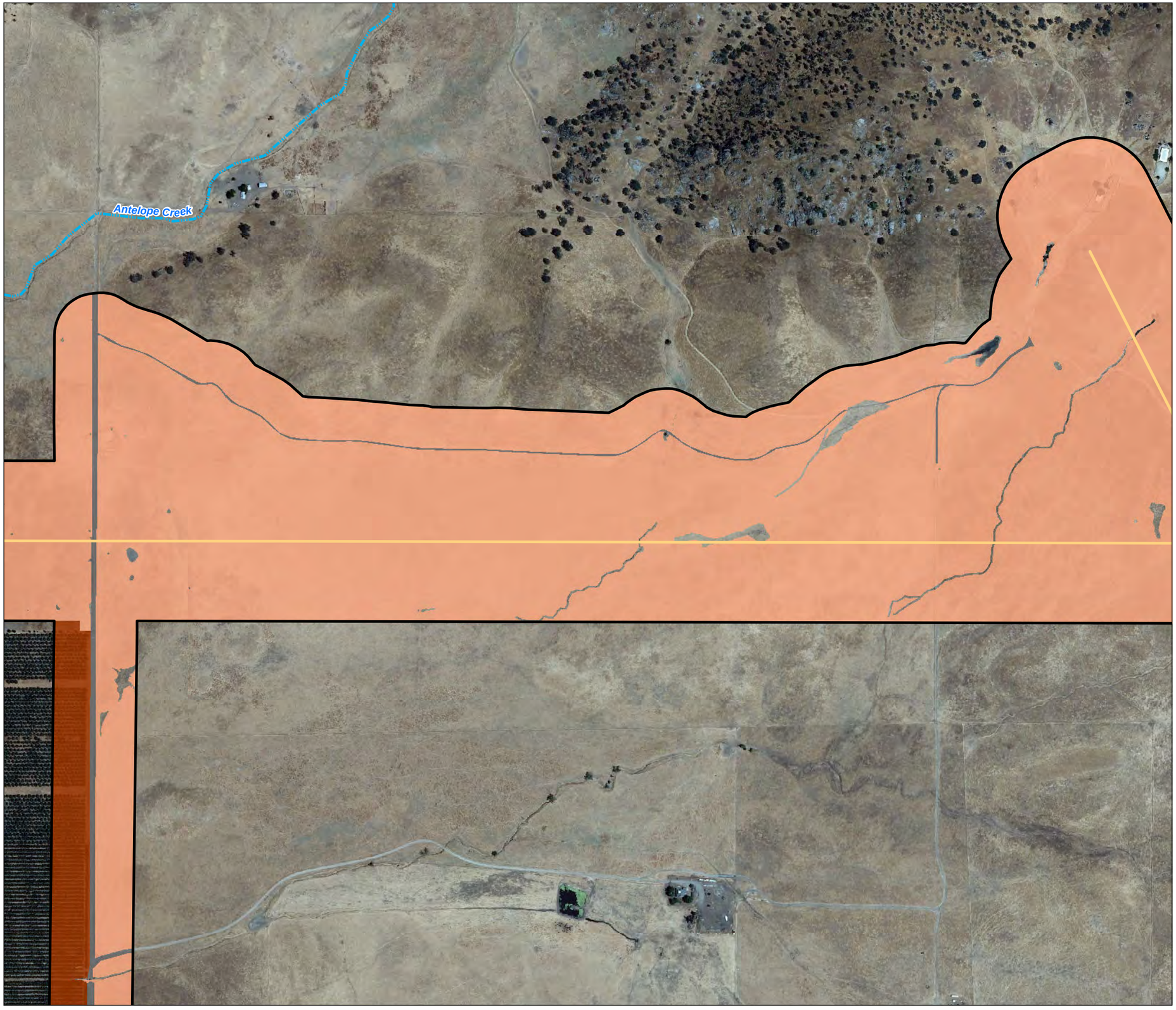
Appendix B
Figure B-2 (xvii)
Cross Valley Line Transmission Project



- Cross Valley Line
- HCP Planning Area

NHD Stream Code

- Canal/Ditch: Aqueduct
- Artificial Path
- Canal/Ditch
- Connector
- Stream/River: Intermittent
- Stream/River: Perennial

Land Cover - Terrestrial

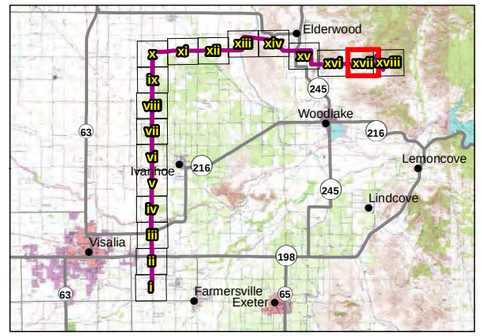
- Agricultural - Orchard
- Agricultural - Row/Field Crops
- Agricultural - Vineyards
- Annual Grassland
- Developed
- Riparian Forest
- Developed DWR (2007)

Notes: Land Cover (Terrestrial) results are based on surveys conducted during 2010. Due to the scale of the map, the distribution symbology is a graphic representation of actual occurrence area

N W E S

0 250 500 1,000 Feet

Source: ESRI 2010; SCE 2/26/2013, Quad Knopf 2010



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Appendix B
Figure B-2 (xviii)
Cross Valley Line Transmission Project

Cross Valley Line

HCP Planning Area

NHD Stream Code

Canal/Ditch: Aqueduct

Artificial Path

Canal/Ditch

Connector

Stream/River: Intermittent

Stream/River: Perennial

Land Cover - Terrestrial

Agricultural - Orchard

Agricultural - Row/Field Crops

Agricultural - Vineyards

Annual Grassland

Developed

Riparian Forest

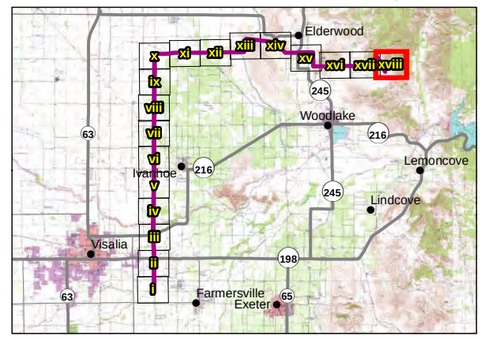
Developed DWR (2007)

Notes: Land Cover (Terrestrial) results are based on surveys conducted during 2010. Due to the scale of the map, the distribution symbology is a graphic representation of actual occurrence area

N W E S

0 250 500 1,000 Feet

Source: ESRI 2010; SCE 2/26/2013, Quad Knopf 2010



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Appendix B
Figure B-3 (i)
Cross Valley Line Transmission Project
Covered Activities - E/W

HCP Planning Area
Cross Valley Line

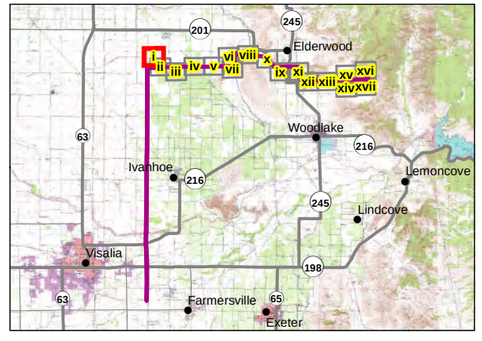
Roads and Travel Routes
- No Improvement Construction use
- All Categories of Improvement
- Off Road Travel Route
- New Design Road
- Graded Slope
- Clear Areas
- Crane Pad
- Wire Setup Areas
- Structure Work Area, General Disturbance Area, and Guard Pole
- Structure Replacement Work Area
- Drainage Features

Land Cover - Aquatic
- Basin/Stock Pond
- Ditch
- Lined Canal
- Puddle
- Riverine
- Vernal Pool
- Ephemeral Drainage

N
W E
S

0 200 400 800
Feet

Source: ESRI 2010; SCE 3/19/2013; NAIP 2010



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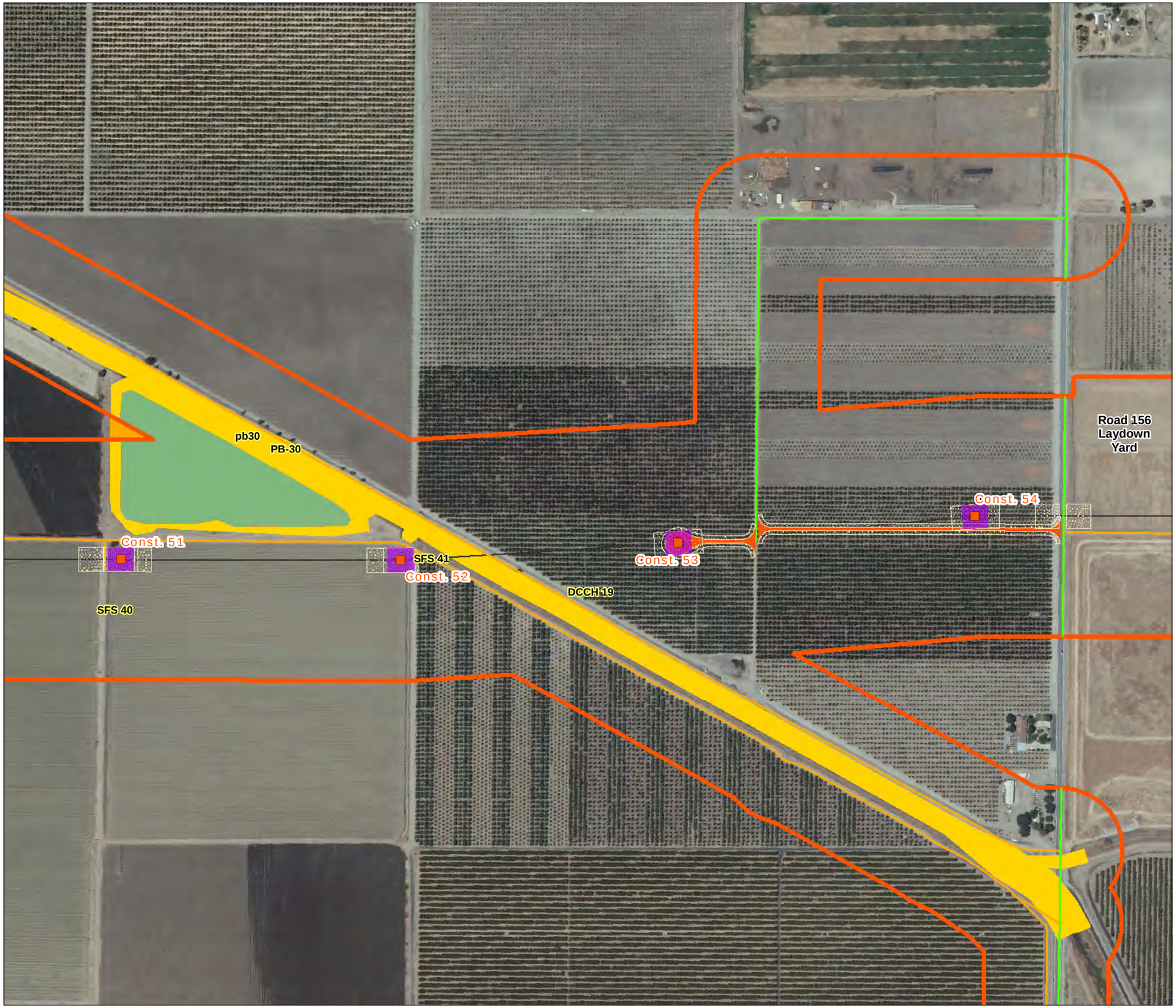
Appendix B
Figure B-3 (ii)
Cross Valley Line Transmission Project
Covered Activities - E/W



- HCP Planning Area
- Cross Valley Line

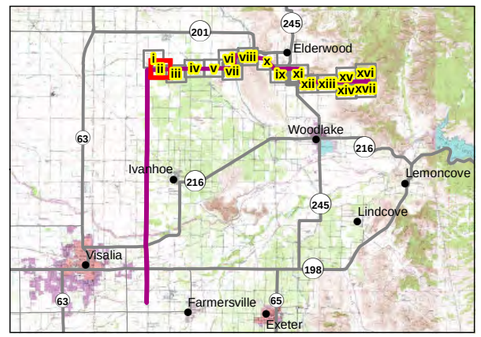
Roads and Travel Routes
- No Improvement Construction use
- All Categories of Improvement
- Off Road Travel Route
- New Design Road
- Graded Slope
- Clear Areas
- Crane Pad
- Wire Setup Areas
- Structure Work Area, General Disturbance Area, and Guard Pole
- Structure Replacement Work Area
- Drainage Features

Land Cover - Aquatic
- Basin/Stock Pond
- Ditch
- Lined Canal
- Puddle
- Riverine
- Vernal Pool
- Ephemeral Drainage

N
W E
S

0 200 400 800 Feet

Source: ESRI 2010; SCE 3/19/2013; NAIP 2010



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SCE Cross Valley Loop Transmission Line Habitat Conservation Plan

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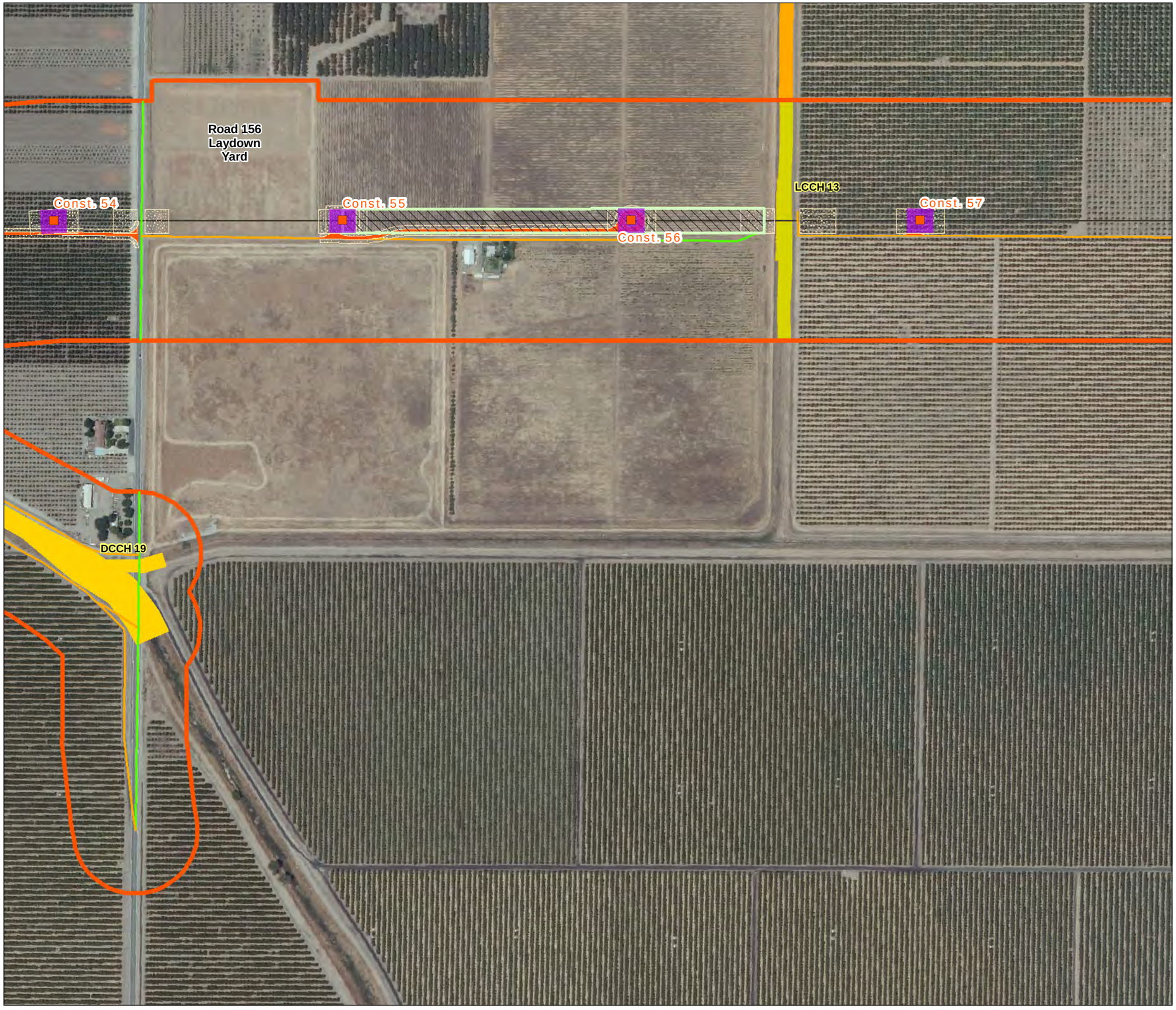


Appendix B
Figure B-3 (iii)
Cross Valley Line Transmission Project
Covered Activities - E/W

- HCP Planning Area
- Cross Valley Line

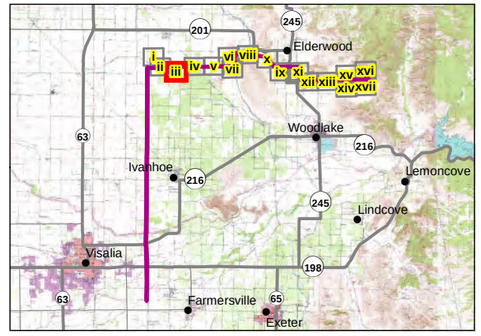
Roads and Travel Routes
- No Improvement Construction use
- All Categories of Improvement
- Off Road Travel Route
- New Design Road
- Graded Slope
- Clear Areas
- Crane Pad
- Wire Setup Areas
- Structure Work Area, General Disturbance Area, and Guard Pole
- Structure Replacement Work Area
- Drainage Features

Land Cover - Aquatic
- Basin/Stock Pond
- Ditch
- Lined Canal
- Puddle
- Riverine
- Vernal Pool
- Ephemeral Drainage

N
W E
S

0 200 400 800
Feet

Source: ESRI 2010; SCE 3/19/2013; NAIP 2010



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Appendix B
Figure B-3 (iv)
Cross Valley Line Transmission Project Covered Activities - E/W

HCP Planning Area
Cross Valley Line

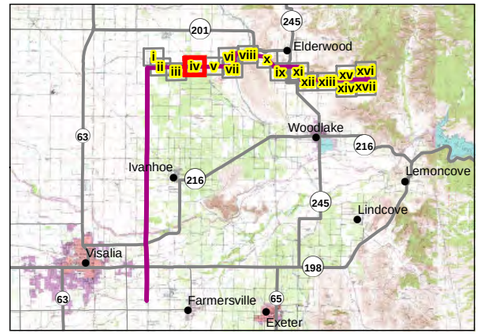
Roads and Travel Routes
- No Improvement Construction use
- All Categories of Improvement
- Off Road Travel Route
- New Design Road
- Graded Slope
- Clear Areas
- Crane Pad
- Wire Setup Areas
- Structure Work Area, General Disturbance Area, and Guard Pole
- Structure Replacement Work Area
- Drainage Features

Land Cover - Aquatic
- Basin/Stock Pond
- Ditch
- Lined Canal
- Puddle
- Riverine
- Vernal Pool
- Ephemeral Drainage

N
W E
S

0 200 400 800
Feet

Source: ESRI 2010; SCE 3/19/2013; NAIP 2010



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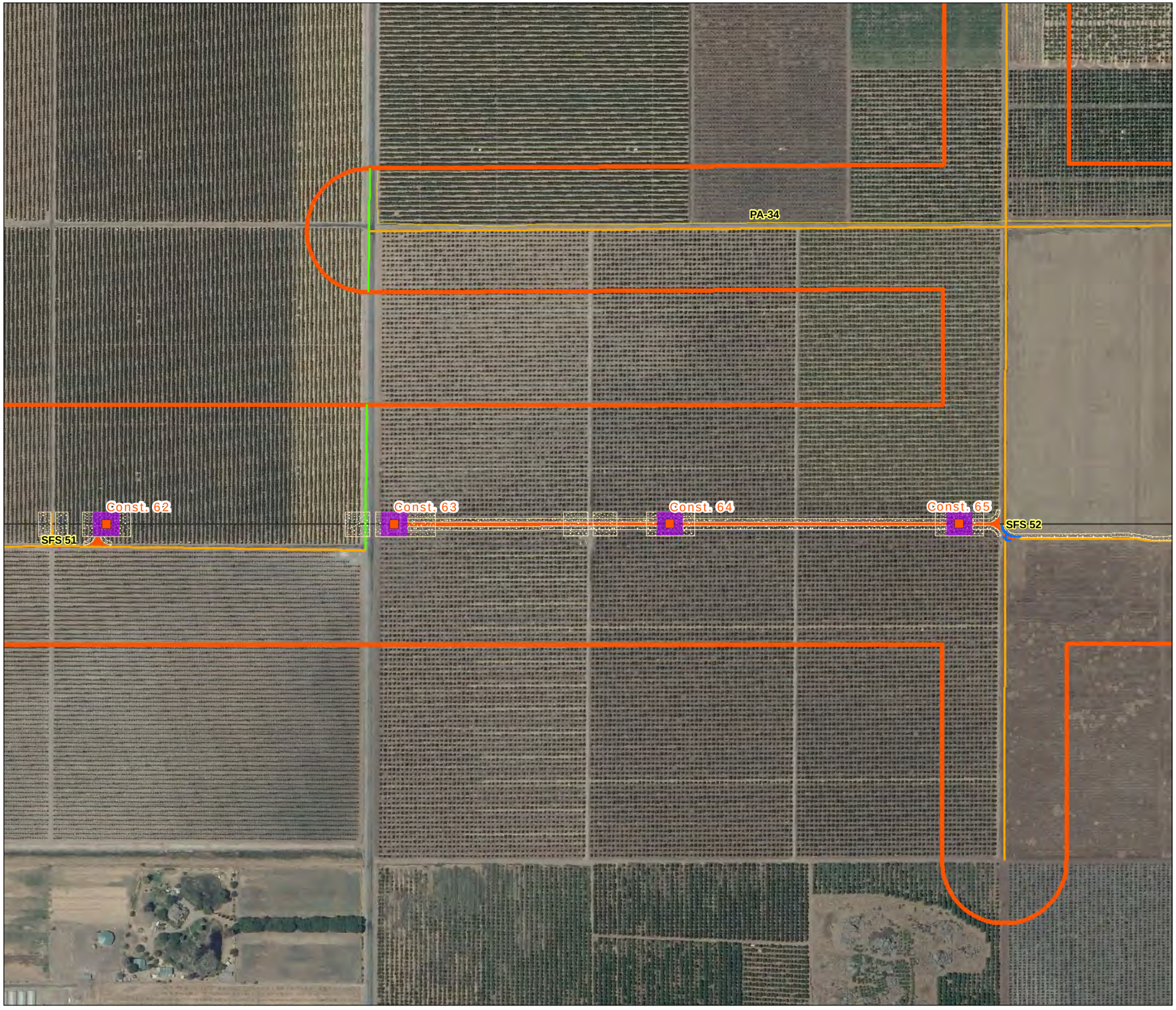
Appendix B
Figure B-3 (v)
Cross Valley Line Transmission Project
Covered Activities - E/W



- HCP Planning Area
- Cross Valley Line

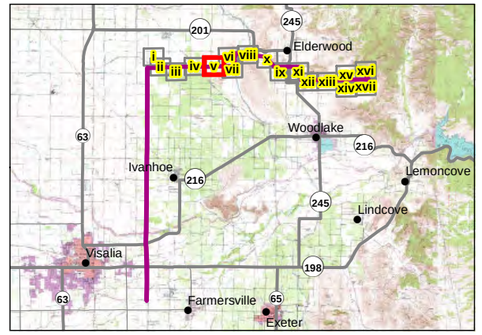
Roads and Travel Routes
- No Improvement Construction use
- All Categories of Improvement
- Off Road Travel Route
- New Design Road
- Graded Slope
- Clear Areas
- Crane Pad
- Wire Setup Areas
- Structure Work Area, General Disturbance Area, and Guard Pole
- Structure Replacement Work Area
- Drainage Features

Land Cover - Aquatic
- Basin/Stock Pond
- Ditch
- Lined Canal
- Puddle
- Riverine
- Vernal Pool
- Ephemeral Drainage

N
W E
S

0 200 400 800
Feet

Source: ESRI 2010; SCE 3/19/2013; NAIP 2010



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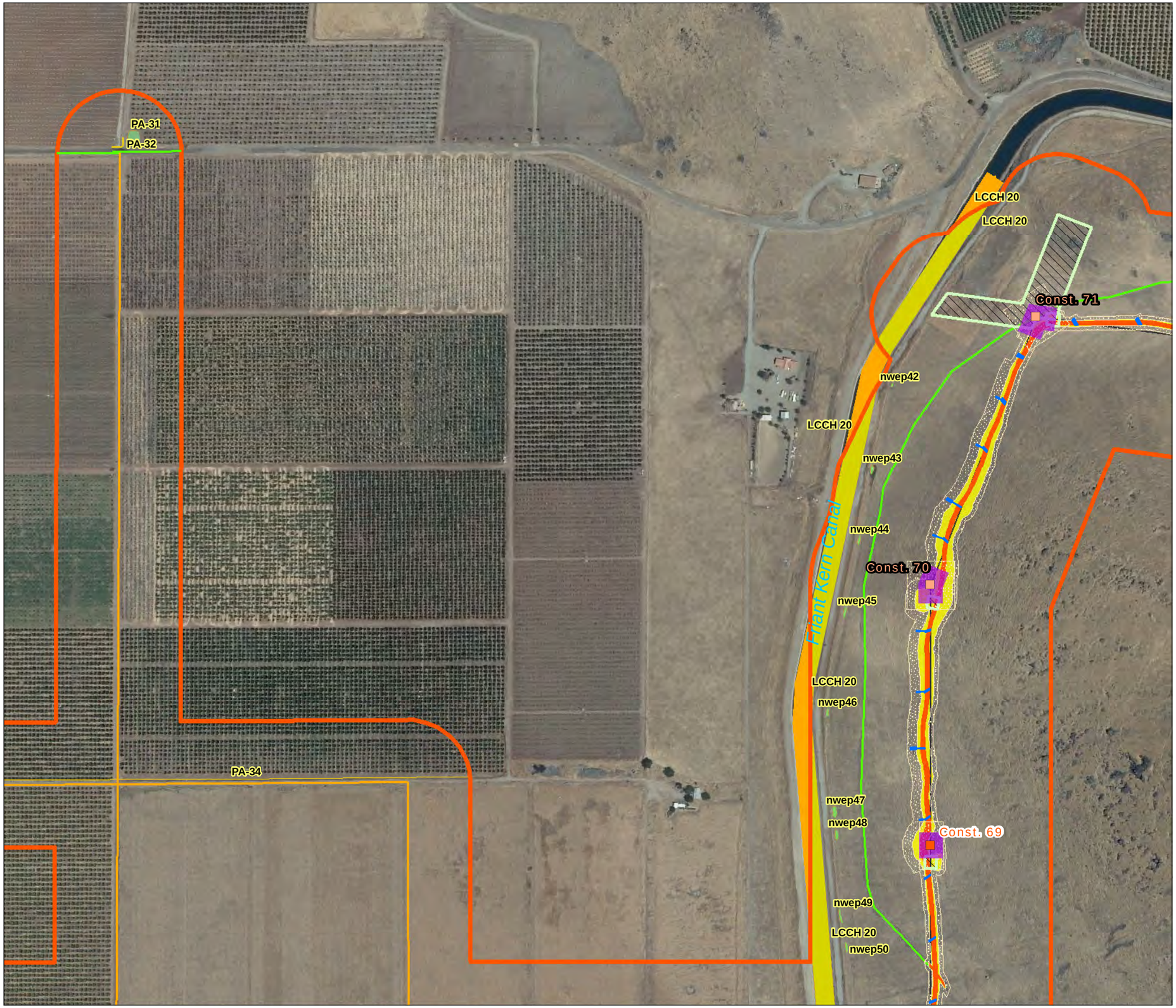
Appendix B
Figure B-3 (vi)
Cross Valley Line Transmission Project
Covered Activities - E/W



HCP Planning Area
Cross Valley Line

Roads and Travel Routes
- No Improvement Construction use
- All Categories of Improvement
- Off Road Travel Route
- New Design Road
- Graded Slope
- Clear Areas
- Crane Pad
- Wire Setup Areas
- Structure Work Area, General Disturbance Area, and Guard Pole
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Feet

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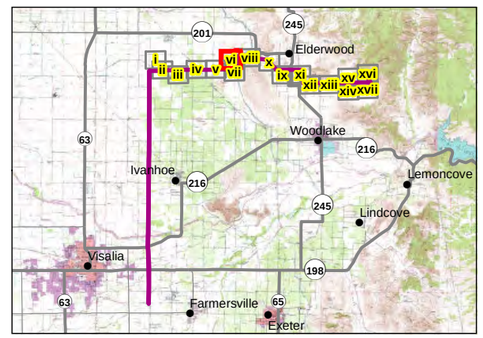

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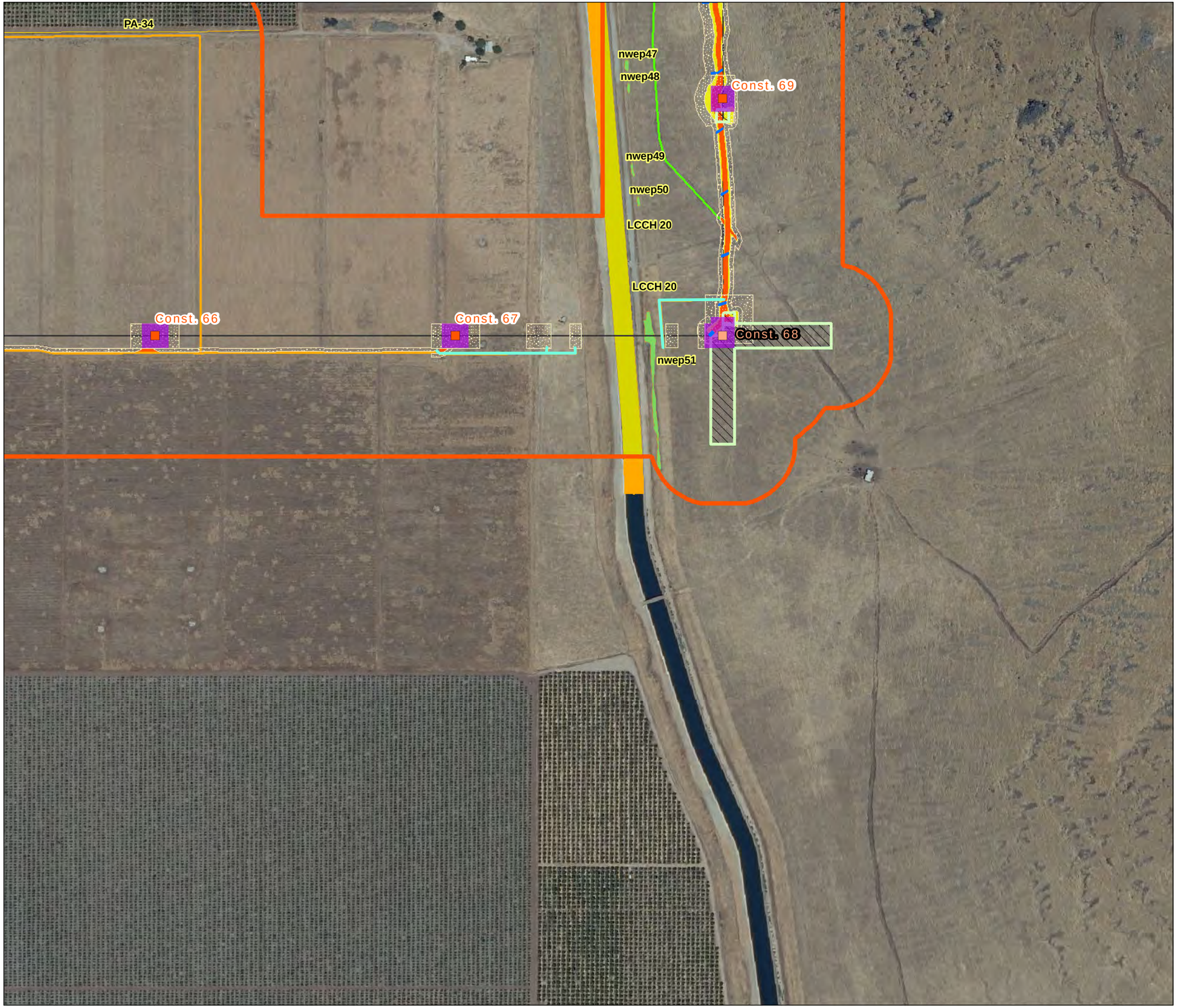

Appendix B
Figure B-3 (vii)
Cross Valley Line Transmission Project
Covered Activities - E/W

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0 200 400 800 Feet

Source: ESRI 2010; SCE 3/19/2013; NAIP 2010

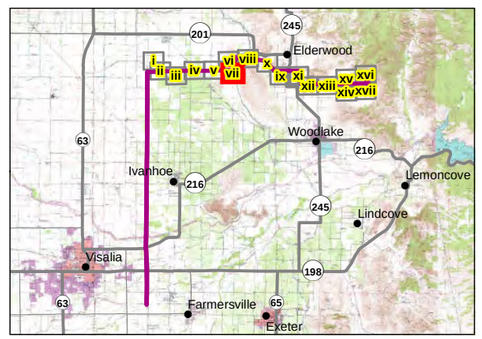

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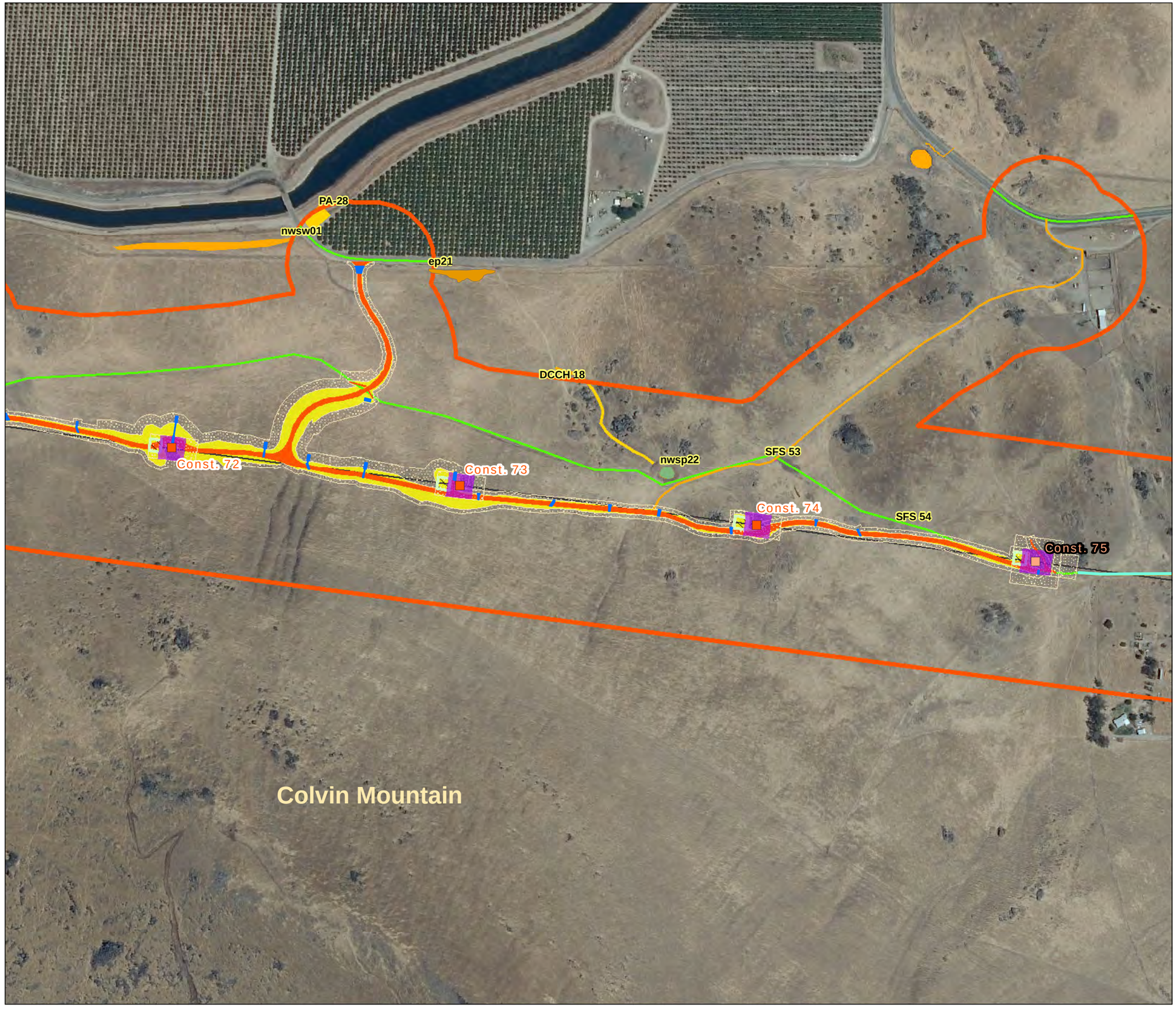
Figure B-3 (viii)
Cross Valley Line Transmission Project
Covered Activities - E/W



HCP Planning Area
Cross Valley Line

Roads and Travel Routes
- No Improvement Construction use
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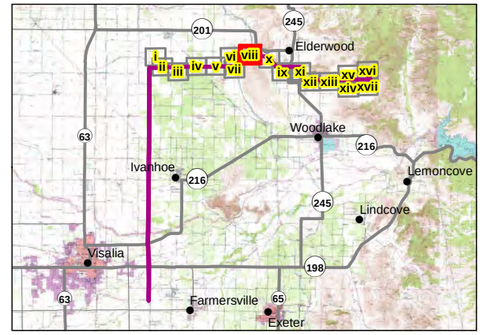
Feet

Source: ESRI 2010; SCE 3/19/2013; NAIP 2010



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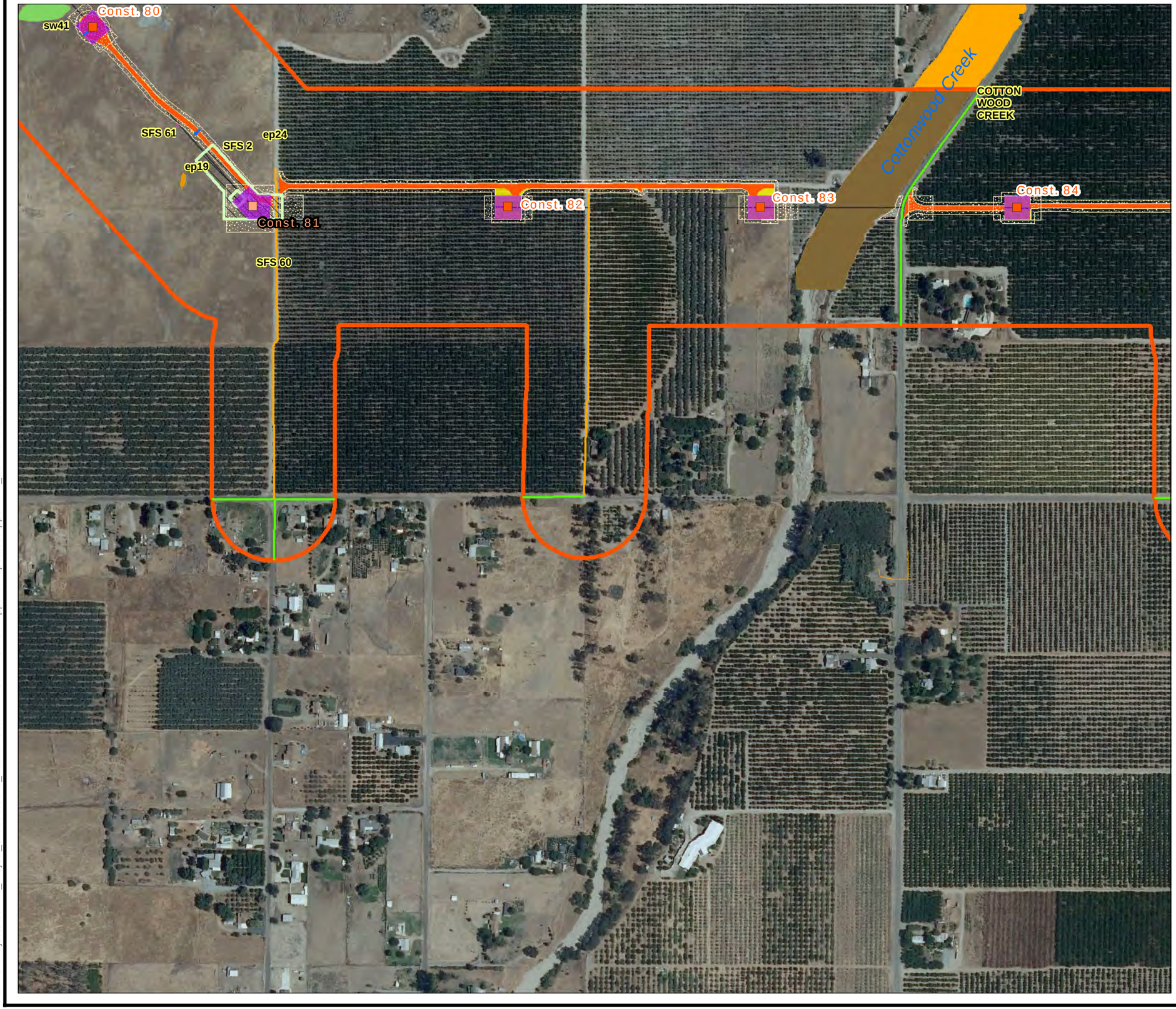
Appendix B
Figure B-3 (ix)
Cross Valley Line Transmission Project Covered Activities - E/W



- HCP Planning Area
- Cross Valley Line

Roads and Travel Routes
- No Improvement Construction use
- All Categories of Improvement
- Off Road Travel Route
- New Design Road
- Graded Slope
- Clear Areas
- Crane Pad
- Wire Setup Areas
- Structure Work Area, General Disturbance Area, and Guard Pole
- Structure Replacement Work Area
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- Puddle
- Riverine
- Vernal Pool
- Ephemeral Drainage

N
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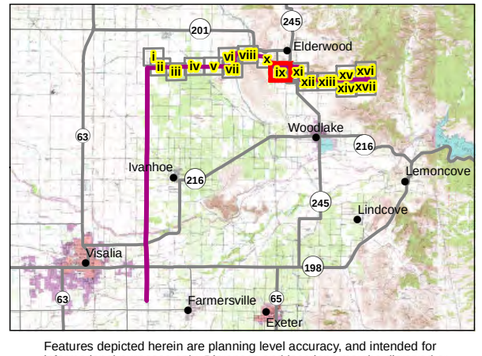
0 200 400 800
Feet

Source: ESRI 2010; SCE 3/19/2013; NAIP 2010



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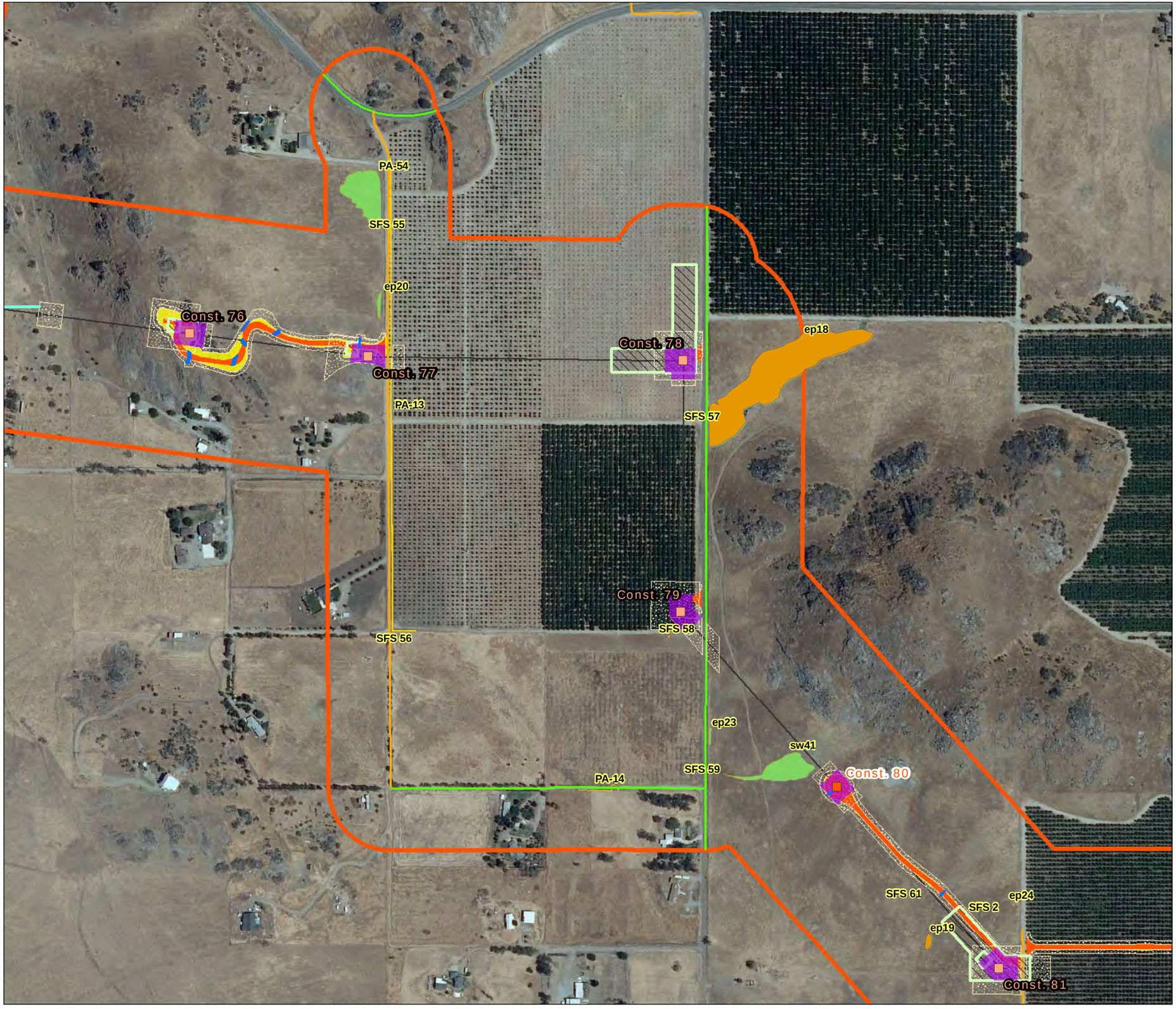
Appendix B
Figure B-3 (x)
Cross Valley Line Transmission Project
Covered Activities - E/W



HCP Planning Area
Cross Valley Line

Roads and Travel Routes
- No Improvement Construction use
- All Categories of Improvement
- Off Road Travel Route
- New Design Road
- Graded Slope
- Clear Areas
- Crane Pad
- Wire Setup Areas
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- Riverine
- Vernal Pool
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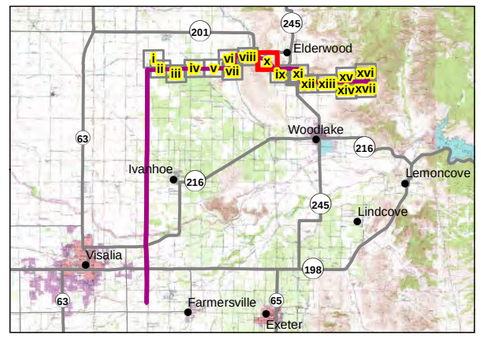
Source: ESRI 2010; SCE 3/19/2013; NAIP 2010



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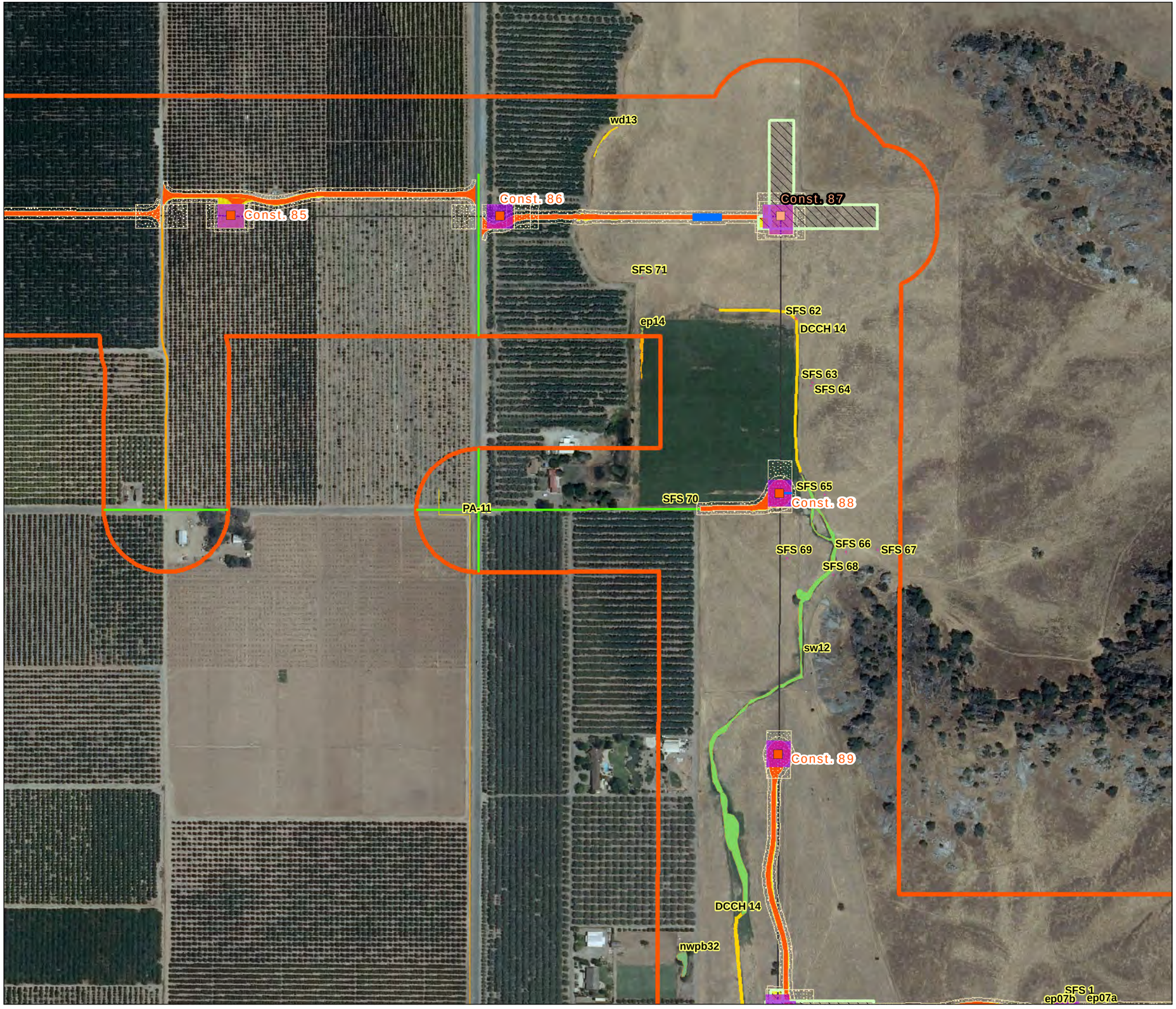


Appendix B
Figure B-3 (xi)
Cross Valley Line Transmission Project Covered Activities - E/W

- HCP Planning Area
- Cross Valley Line

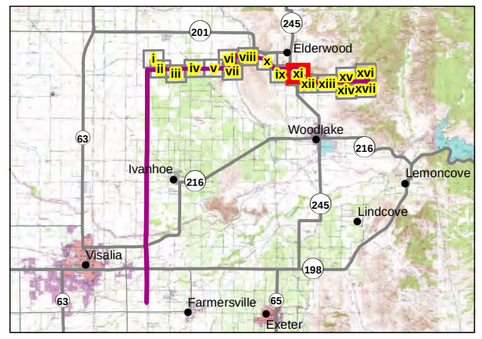
Roads and Travel Routes
- No Improvement Construction use
- All Categories of Improvement
- Off Road Travel Route
- New Design Road
- Graded Slope
- Clear Areas
- Crane Pad
- Wire Setup Areas
- Structure Work Area, General Disturbance Area, and Guard Pole
- Structure Replacement Work Area
- Drainage Features

Land Cover - Aquatic
- Basin/Stock Pond
- Ditch
- Lined Canal
- Puddle
- Riverine
- Vernal Pool
- Ephemeral Drainage

N W E S

0 200 400 800 Feet

Source: ESRI 2010; SCE 3/19/2013; NAIP 2010



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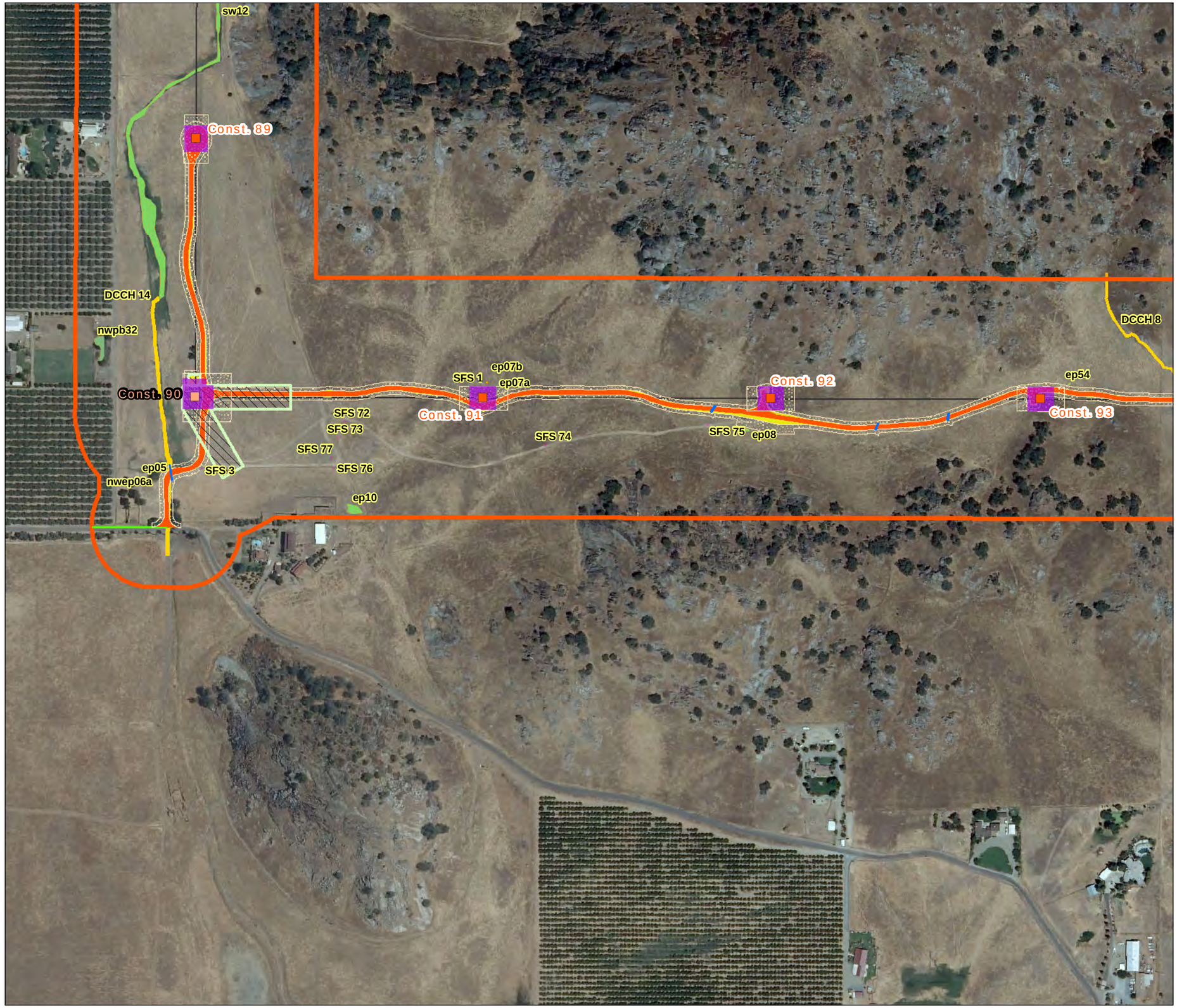
Appendix B
Figure B-3 (xii)
Cross Valley Line Transmission Project
Covered Activities - E/W



HCP Planning Area
Cross Valley Line

Roads and Travel Routes
- No Improvement Construction use
- All Categories of Improvement
- Off Road Travel Route
- New Design Road
- Graded Slope
- Clear Areas
- Crane Pad
- Wire Setup Areas
- Structure Work Area, General Disturbance Area, and Guard Pole
- Structure Replacement Work Area
- Drainage Features

Land Cover - Aquatic
- Basin/Stock Pond
- Ditch
- Lined Canal
- Puddle
- Riverine
- Vernal Pool
- Ephemeral Drainage

N
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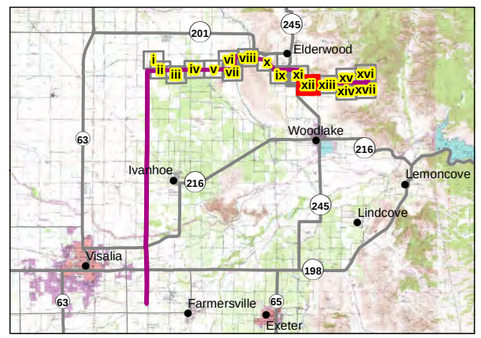
S

0 200 400 800
Feet

Source: ESRI 2010; SCE 3/19/2013; NAIP 2010



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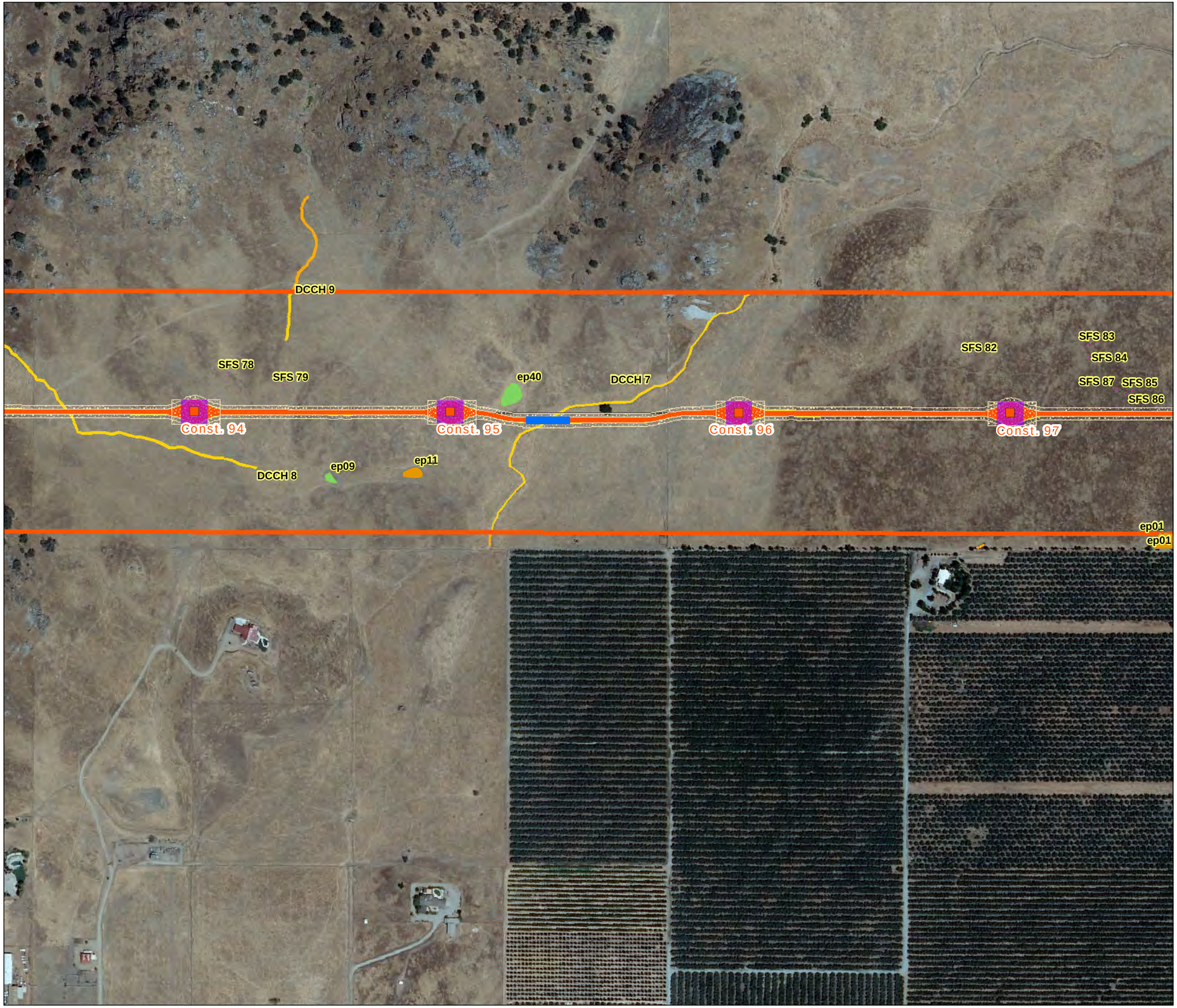

Appendix B
Figure B-3 (xiii)
Cross Valley Line Transmission Project
Covered Activities - E/W

- HCP Planning Area
- Cross Valley Line

Roads and Travel Routes

- No Improvement Construction use
- All Categories of Improvement
- Off Road Travel Route
- New Design Road
- Graded Slope
- Clear Areas
- Crane Pad
- Wire Setup Areas
- Structure Work Area, General Disturbance Area, and Guard Pole
- Structure Replacement Work Area
- Drainage Features

Land Cover - Aquatic

- Basin/Stock Pond
- Ditch
- Lined Canal
- Puddle
- Riverine
- Vernal Pool
- Ephemeral Drainage

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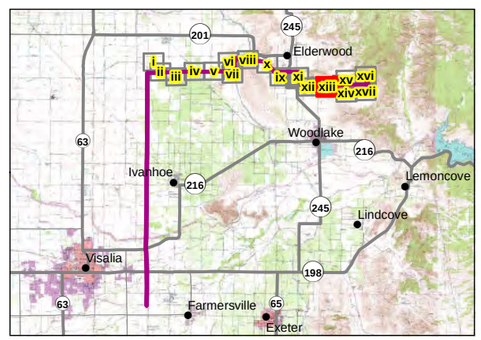
0 200 400 800
Feet

Source: ESRI 2010; SCE 3/19/2013; NAIP 2010



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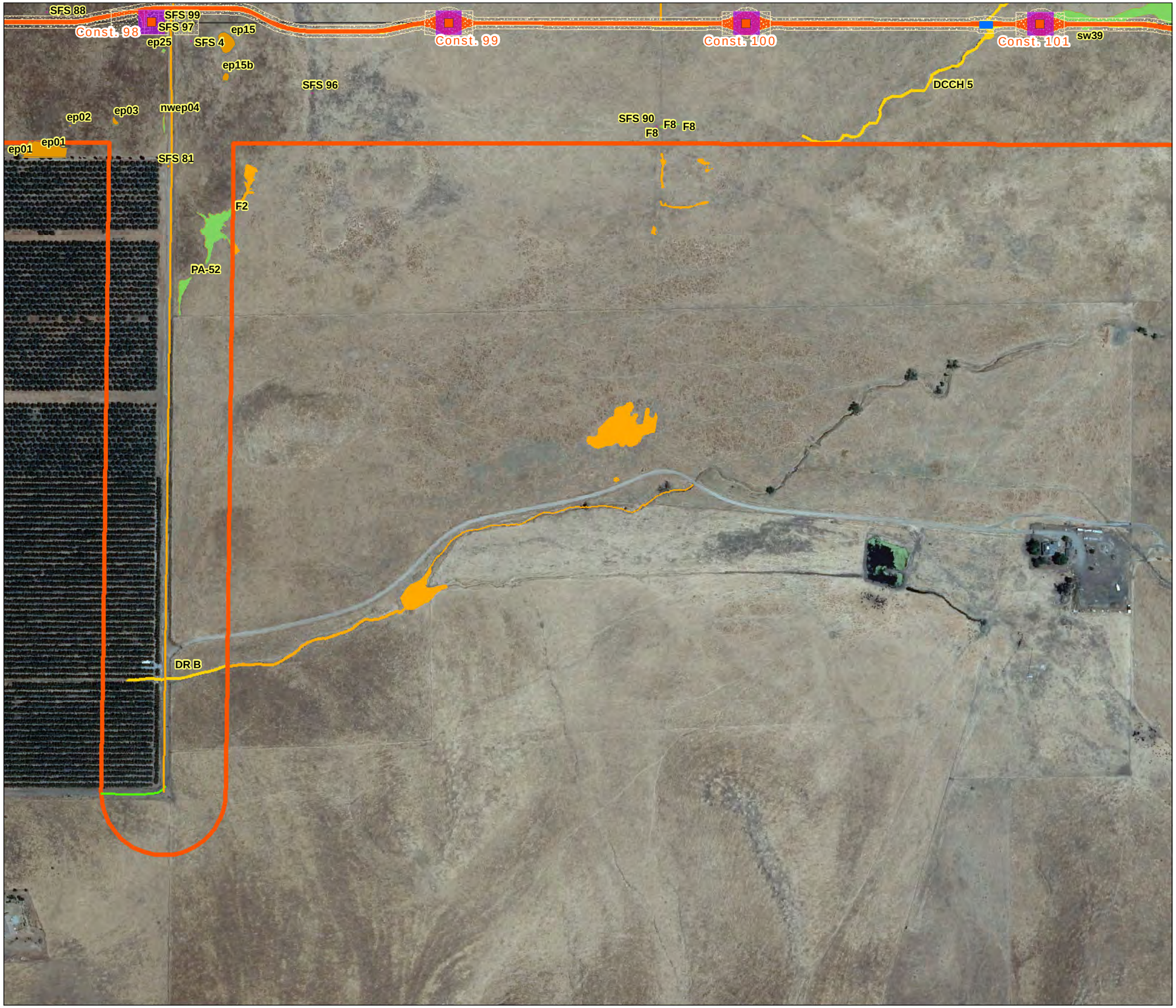

Appendix B
Figure B-3 (xiv)
Cross Valley Line Transmission Project Covered Activities - E/W

- HCP Planning Area
- Cross Valley Line

Roads and Travel Routes
- No Improvement Construction use
- All Categories of Improvement
- Off Road Travel Route
- New Design Road
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- Wire Setup Areas
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Land Cover - Aquatic
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0 200 400 800
Feet

Source: ESRI 2010; SCE 3/19/2013; NAIP 2010

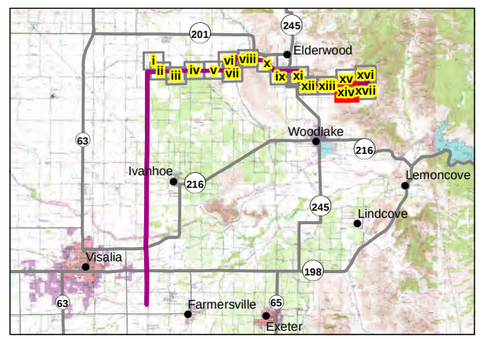

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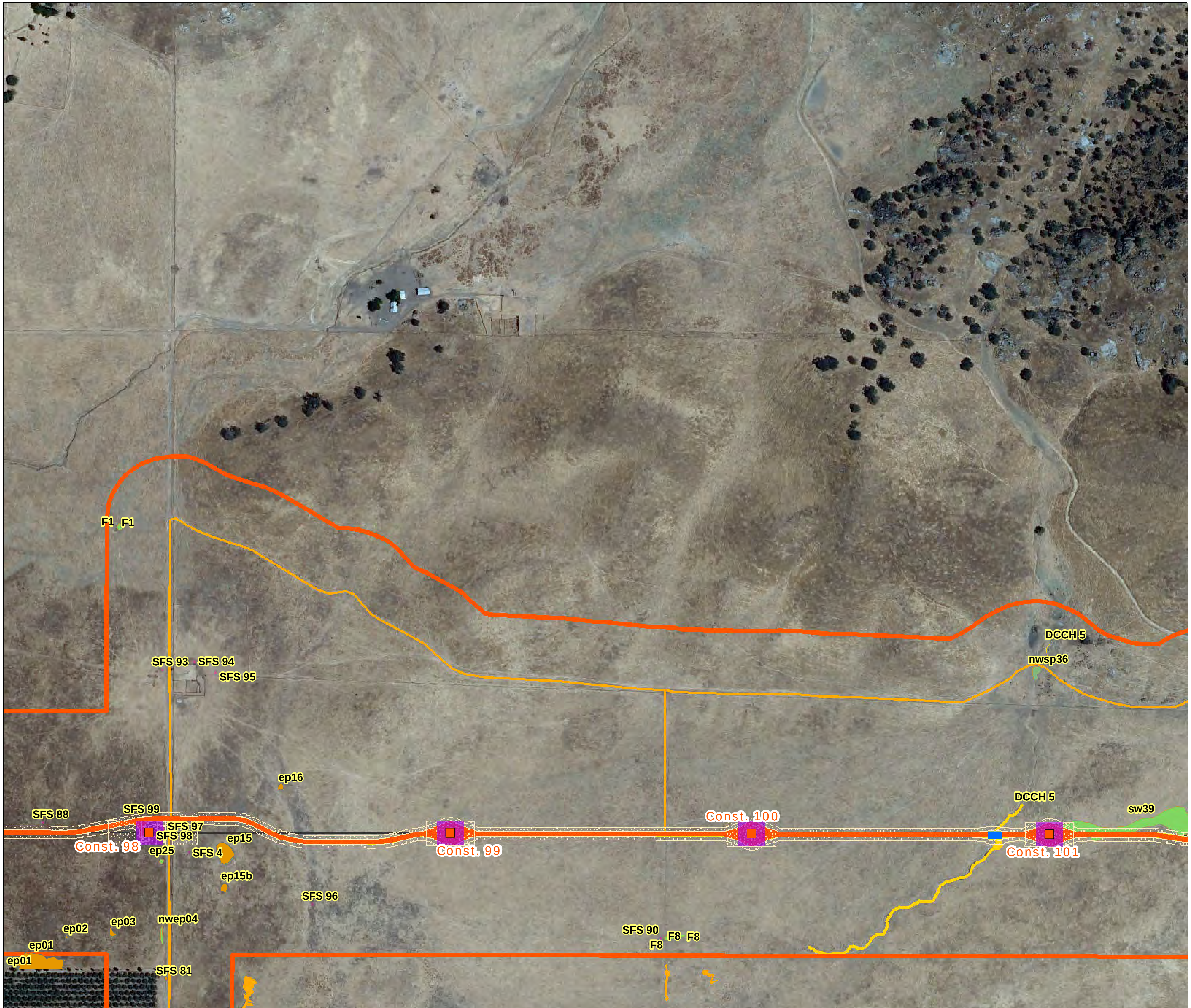
Figure B-3 (xv)
Cross Valley Line Transmission Project Covered Activities - E/W



HCP Planning Area
Cross Valley Line
Roads and Travel Routes
No Improvement Construction use
All Categories of Improvement
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Graded Slope
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Crane Pad
Wire Setup Areas
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Structure Replacement Work Area
Drainage Features

Land Cover - Aquatic
Basin/Stock Pond
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Riverine
Vernal Pool
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N
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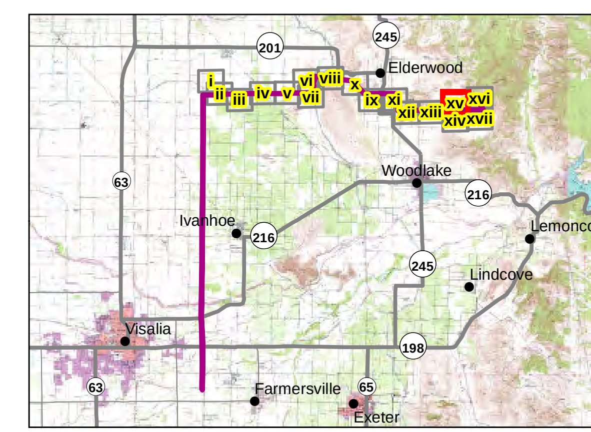
0 200 400 800
Feet

Source: ESRI 2010; SCE 3/19/2013; NAIP 2010



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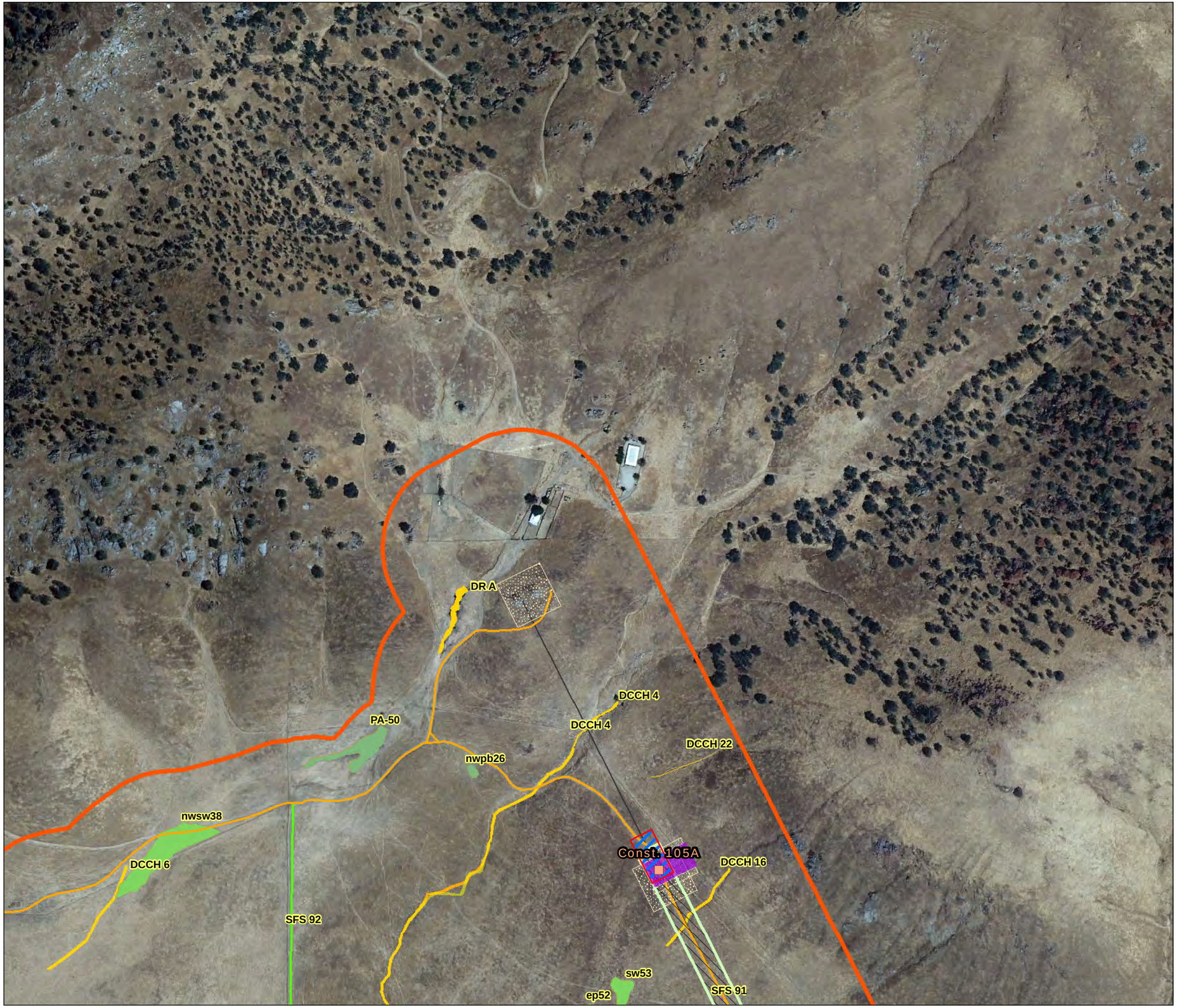
Appendix B
Figure B-3 (xvi)
Cross Valley Line Transmission Project
Covered Activities - E/W



- HCP Planning Area
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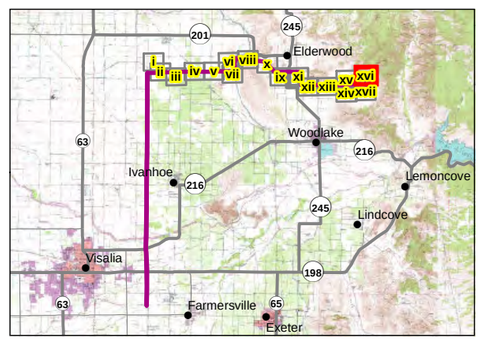
N W E S

0 200 400 800 Feet

Source: ESRI 2010; SCE 3/19/2013; NAIP 2010



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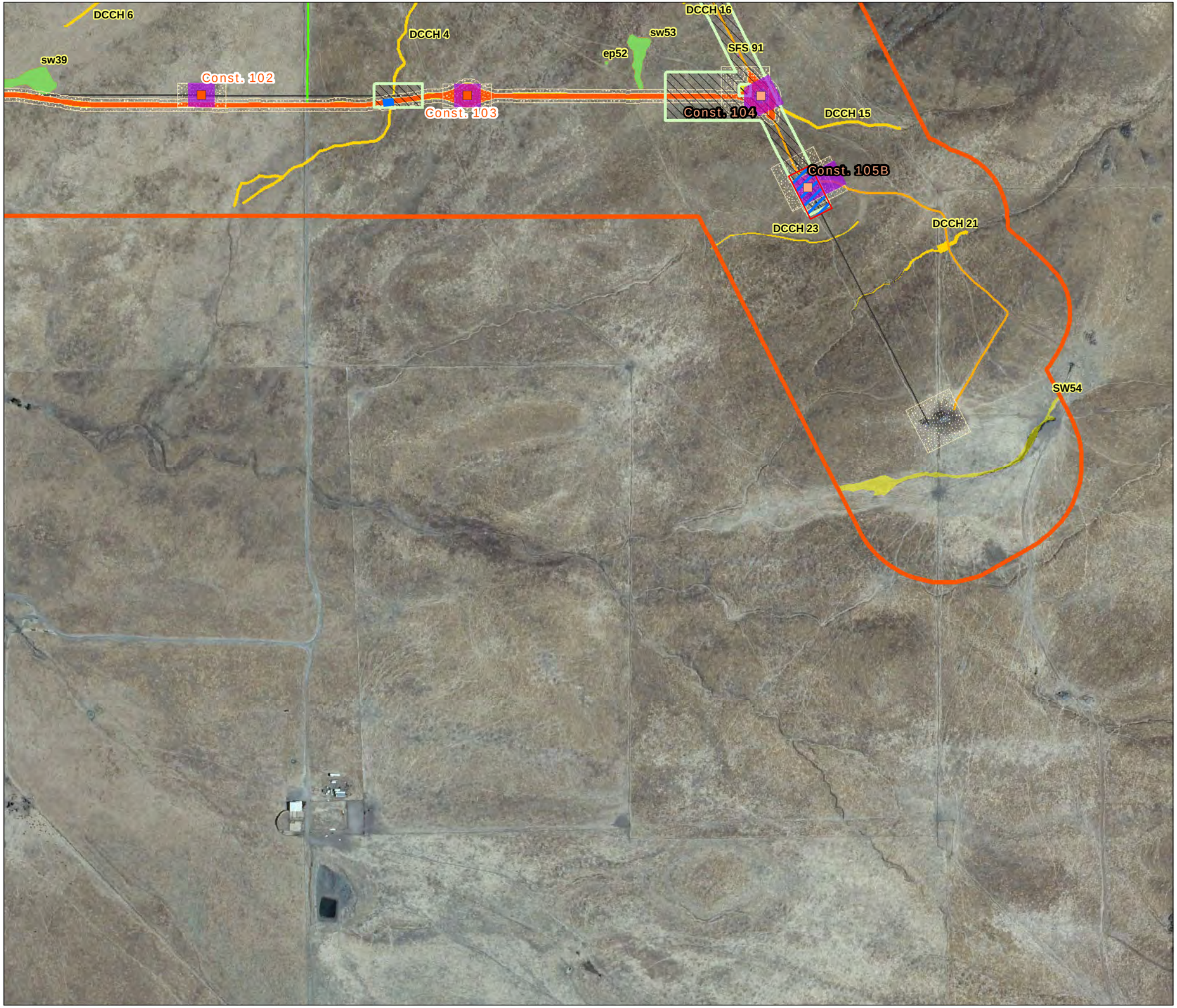

Appendix B
Figure B-3 (xvii)
Cross Valley Line Transmission Project
Covered Activities - E/W

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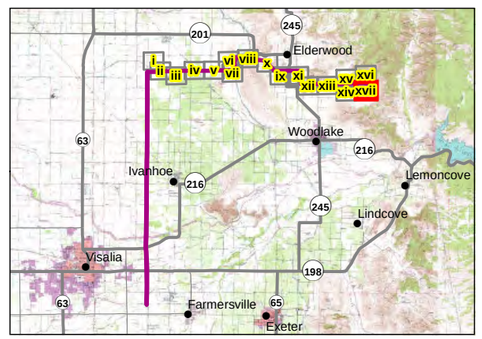
N W E S

0 200 400 800 Feet

Source: ESRI 2010; SCE 3/19/2013; NAIP 2010



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APPENDIX C

Noxious Weed and Invasive Plant Control Plan

NOXIOUS WEED AND INVASIVE PLANT CONTROL PLAN

for the

Southern California Edison

San Joaquin Cross Valley Loop Transmission Project

Southern California Edison Corporate Environment
Health and Safety Division

MAY 2013

Noxious Weed and Invasive Plant Control Plan for the Southern California Edison San Joaquin Cross Valley Loop Transmission Project

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ACRONYMS AND ABBREVIATIONS

Acronym/Abbreviation	Definition
CCR	California Code of Regulations
CDFA	California Department of Food and Agriculture
CDFG	California Department of Fish and Game
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CPCN	Certificate of Public Convenience and Necessity
CPUC	California Public Utilities Commission
EIR	environmental impact report
GIS	geographic information system
GPS	Global Positioning System
kV	kilovolt
ROW	right-of-way
SCE	Southern California Edison
U.S.C.	U.S. Code
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
WEAP	Worker Environmental Awareness Program

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Noxious Weed and Invasive Plant Control Plan for the Southern California Edison San Joaquin Cross Valley Loop Transmission Project

1.0 INTRODUCTION

1.1 Project Overview

This document is the Noxious Weed and Invasive Plant Control Plan for Southern California Edison's (SCE's) San Joaquin Cross Valley Loop Transmission Line Project (Cross Valley Loop). The Cross Valley Loop Project entails the construction of a new, double-circuit, 220-kilovolt (kV) transmission line intended to maintain safe and reliable electric service to customers and to serve forecasted electrical demand in the southwestern portion of the San Joaquin Valley. The Cross Valley Loop corridor begins at SCE's Rector Substation, located in eastern Visalia, and continues north along existing SCE right-of-way (ROW) for approximately 10.8 miles. From there, it continues 12.2 miles east, then north, and eventually winds along the base of Lone Oak Mountain to loop into the existing Big Creek 3–Springville 220 kV transmission line (Figure 1-1). The width for the existing SCE right-of-way will remain at 150 feet and the width of the new right of way will be 100 feet.

The Cross Valley Loop project was approved by the California Public Utilities Commission (CPUC), and a Certificate of Public Convenience and Necessity (CPCN) was granted in June 2010. This licensing process included preparation of a draft and final environmental impact report (EIR) (ESA 2010). One of the potential significant impacts was the introduction or spread of noxious weeds or other invasive plants into the project area. The Noxious Weed and Invasive Plant Control Plan was prepared to identify mitigation measures that would reduce this potential impact to less-than-significant levels.

This Noxious Weed and Invasive Plant Control Plan was prepared by SCE for the San Joaquin Cross Valley Loop Transmission Project in Tulare County, California, to fulfill the requirements of Mitigation Measure 4.4-1c as outlined in the project's Final Environmental Impact Report and Mitigation Monitoring. Reporting and Compliance Plan MMRCP(ESA 2010).

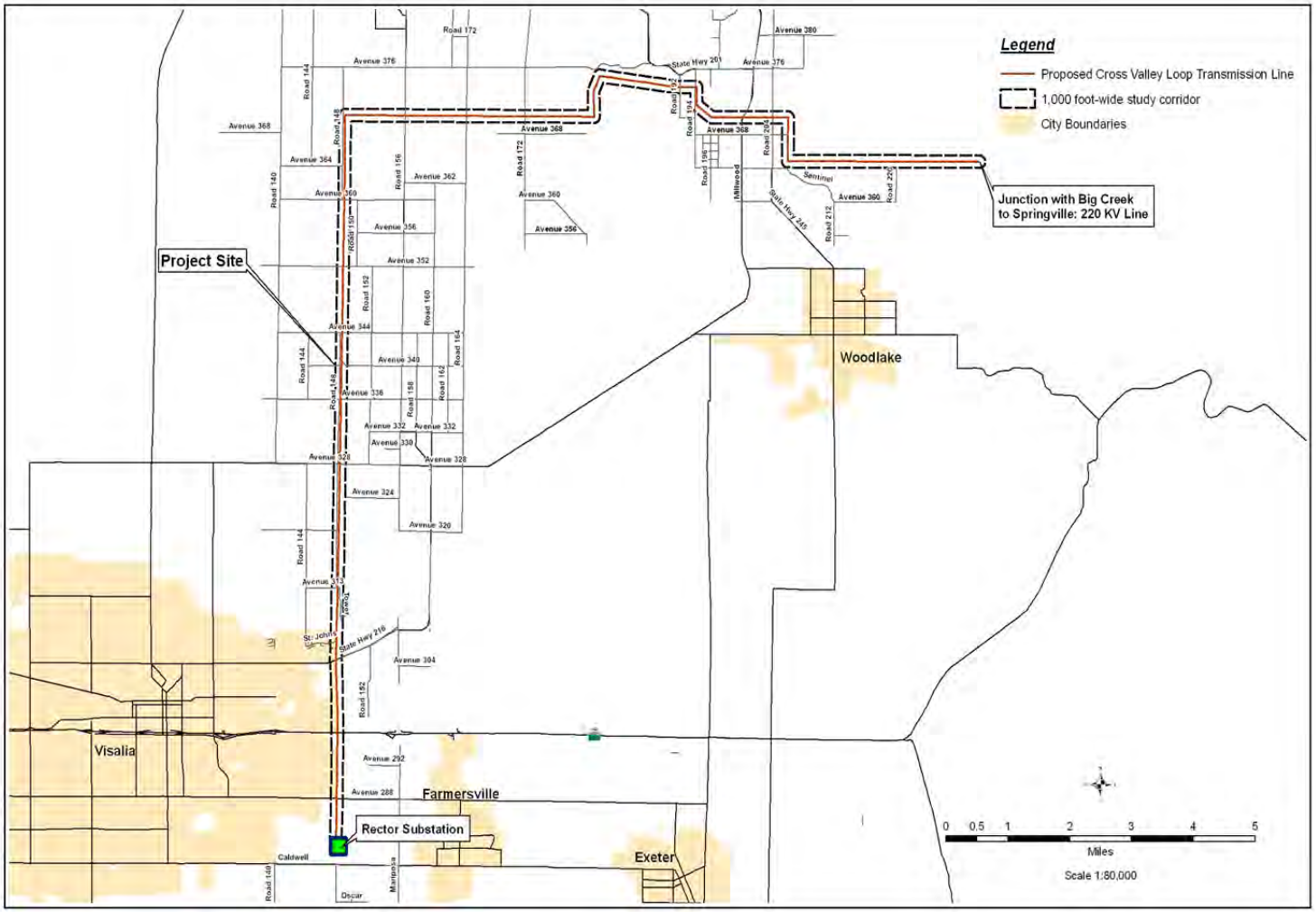
1.2 Plant Communities

The project site is situated on the San Joaquin Valley floor, west of the Sierra Nevada foothills, within northern Tulare County. Although the southern portion of the Cross Valley Loop corridor is near the Cities of Farmersville and Visalia, the northeast portion lies within narrow valleys nestled among low foothills, north of the Kaweah River and north and west of Kaweah Reservoir. A rich and diverse plant and wildlife community was once present in the project vicinity. Historic vegetation likely included vast expanses of Interior Live Oak Woodlands, Valley Oak Woodlands, Great Valley Mixed Riparian Forest, and annual and perennial grasslands. The Kaweah River and

Cottonwood Creek would have been primary water features on the landscape, and other small creeks and tributaries would have been common (Quad Knopf 2010a).

Currently, plant communities within the Cross Valley Loop corridor include urban lands, agricultural lands, non-native grasslands, Interior Live Oak Woodland, rocky outcrops, wetlands, Great Valley Mixed Riparian Forest, and Great Valley Valley Oak Woodland. Figures 1-2a and 1-2b illustrate the plant communities along the corridor. Urban and agricultural lands predominate in the westernmost areas of the transmission line corridor. The urban areas are composed of residential housing developments; no commercial developments occur within the 1,000-foot-wide (500 feet studied on each side of centerline for a total of 1,000 feet) transmission line study corridor. The agricultural lands primarily consist of orchards of various types, but some row crops are also present. Grasslands, Interior Live Oak Woodland, and rocky outcrops predominate in the eastern portions of the corridor, although there are also scattered residences within this area. The grasslands are grazed by cattle, and scattered wetlands and ephemeral pools also occur within this vegetation community. The Interior Live Oak Woodlands and rocky outcrops occur mostly along the fringes of the transmission line corridor and are more prominent in the foothills and slopes outside of the 1,000-foot-wide study corridor. Great Valley Mixed Riparian Forest and Great Valley Oak Riparian Forest occur only along St. John's River and Cottonwood Creek. Only these two major waterways intersect the corridor. An extensive description of the vegetative communities, wetlands, and special-status plant species are presented in separate reports (Quad Knopf 2010a and 2010b). A full analysis of sensitive biological resources is currently ongoing, and these reports will be updated and additional reports prepared as further information is developed.

Noxious Weed and Invasive Plant Control Plan for the Southern California Edison San Joaquin Cross Valley Loop Transmission Project



Quad Knopf

Cross Valley Loop Location Map

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Quad Knopf

Vegetation Communities-Western Portion

Figure 2-1a

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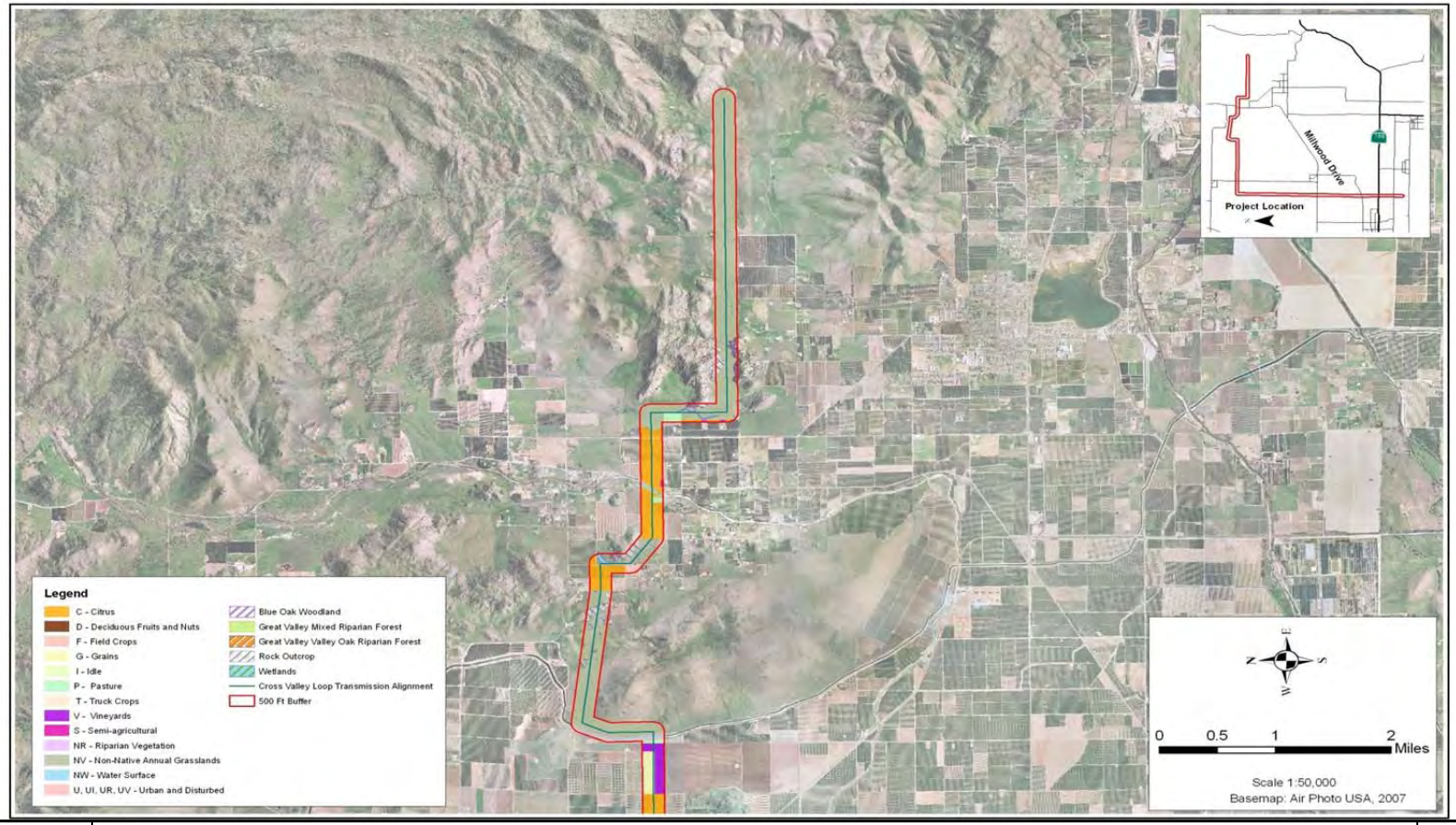

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Vegetation Communities-Eastern Portion

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1.3 Purpose of Noxious Weed and Invasive Plant Control Plan

The purpose of the Noxious Weed and Invasive Plant Control Plan is to develop measures to identify and control potentially noxious weeds and invasive plants within the Cross Valley Loop corridor. There is a possibility that the project could result in the spread of noxious weeds or invasive plants already located within the project corridor to areas outside of Tulare County, as well as cause the introduction of new Class A and B noxious weeds to Tulare County. Each of these possibilities has the potential to impact existing crops and pasture lands as well as to reduce the ecological resources of existing natural communities.

The objectives of this plan are as follows:

- Present a weed control strategy applicable to the project
- Identify Class A and B noxious weed species present on the corridor and at any support sites
- Identify construction activities that may increase the presence of weeds or introduce new weed species on or adjacent to the corridor
- Present the laws and regulations applicable to the project
- Specify implementation procedures of required mitigation measures to avoid, contain, or control weed populations on and/or adjacent to project components.

Specified implementation procedures are intended to (1) prevent establishment of Class A and Class B noxious weeds not currently found within Tulare County and (2) prevent Class A and B noxious weeds already present within the corridor from spreading to other areas outside of Tulare County.

1.4 Mitigation Requirements

Mitigation Measure 4.4-1c in the final EIR (ESA 2010) requires preparation and implementation of a Noxious Weed and Invasive Plant Control Plan as follows:

Mitigation Measure 4.4-1c: *Noxious Weed and Invasive Plant Control Plan. SCE shall develop and implement a Noxious Weed and Invasive Plant Control Plan consistent with standard Best Management Practices (see, for example, Department of Transportation, State of California (2003); Storm Water Quality Handbooks; and Project Planning and Design Guide Construction Site Best Management Practices Manual). The plan shall be reviewed and approved by Tulare County and CPUC and shall, at a minimum, address any required cleaning of construction vehicles to minimize spread of noxious weeds and invasive plants.*

1.5 Reviewing Agencies

CPUC, as the lead agency under the California Environmental Quality Act (CEQA), has overall responsibility to identify and monitor mitigation measures. The CPUC monitor will review the document and assure that the mitigation measures are followed before, during, and after construction. Mitigation Measure 4.4-1c also requires that the plan be submitted to the County of Tulare Agricultural Commission for review and approval. The Commission has primary responsibility for the prevention and control of noxious weeds and invasive plants in Tulare County.

2.0 BACKGROUND AND SPECIES OF CONCERN

This section describes the methods that will be used to prevent the introduction of Class A and B noxious weeds within temporary disturbance areas on private lands during construction and operation of the project. Noxious weed and invasive plant control measures will be applied to mitigate temporary habitat impacts and will focus on prevention, containment, suppression, and control of the target weeds.

The following weed control elements will be applied as appropriate to each identified infestation:

- Prevention – Apply best practices to eliminate the transport of Class A and B noxious weed propagules and minimize conditions conducive to the establishment of new infestations
- Containment – Prevent infestation spread, but not necessarily density, until suppression or eradication can be implemented
- Suppression – Reduce infestation density, but not necessarily infestation area, where eradication of widely distributed or high-density weeds is infeasible
- Eradication – Eliminates all individuals of a weed species within a specified area where the population size is manageable. Applying complete eradication objectives for ubiquitous weed populations is infeasible.

2.1 Definition of Weeds and Invasive Plants

Noxious weeds are typically characterized as non-native plants that aggressively colonize new areas and can grow to dominate native plant communities if uncontrolled. Noxious weeds have a competitive advantage over native species and can form an expansive monoculture. Noxious weeds alter physical or chemical soil conditions, dominate the landscape to the detriment of native plants and wildlife, preempt ground and surface water resources, compromise agricultural operations, conflict with recreational values, create fire hazards, and compromise aesthetic values of native or urban landscapes. Noxious weeds are often quick to colonize disturbed areas, including construction sites, roadsides, irrigated sites, or any other area with altered hydrology, soil structure, or soil chemistry.

Invasive plants are introduced species that can thrive in areas beyond their natural range of dispersal. These plants are characteristically adaptable, aggressive, and have a high reproductive capacity. Their vigor combined with a lack of natural enemies often tends to outbreak populations.

The following list defines the types of weedy plant species:

- Exotic Plants – Species not indigenous to a given area before European settlement
- Native Plants – Species indigenous to a given area before European settlement
- Noxious Weeds – Species identified by public law as exerting substantial negative environmental or economic impact (Noxious weeds are a subset of exotic plants; the term "noxious weeds" is a legal classification, not an ecological term.)
- Invasive Plants – Species defined by Executive Order 13112 (64 FR 6183) as implemented by the National Invasive Species Information Center.

The U.S. Department of Agriculture (USDA) maintains the official federal list of noxious weeds (7 CFR 360.200; USDA 2011). In addition to the federal list, the California Department of Food and Agriculture (CDFA) maintains the list of official noxious weeds requiring control under the Noxious Weed Act of 1989 (CDFA 2010). The official weed list was last updated in the California Code of Regulations (CCR) (3 CCR 4500) in January 2010.

The term "noxious weed" is defined legally, through federal and California State laws, as follows:

USDA Federal Plant Protection Act (7 U.S.C. 7701 et seq.) – "any plant or plant product that can directly or indirectly injure or cause damage to crops (including nursery stock or plant products); livestock, poultry, or other interests of agriculture; irrigation; navigation; the natural resources of the U.S.; the public health; or the environment."

CDFA Noxious Weed Act of 1989 pursuant to CDFA 3 CCR § 4500 – "any species of plant that is, or is liable to be, troublesome, aggressive, intrusive, detrimental, or destructive to agriculture, silviculture, or important native species, and difficult to control or eradicate, which the director, by regulation, designates to be a noxious weed. In determining whether or not a species shall be designated a noxious weed for the purposes of protecting silviculture or important native plant species, the director shall not make that designation if the designation will be detrimental to agriculture."

Both the USDA and CDFA lists were consulted to assemble a combined list of targeted noxious weeds that occur within the project ROW.

2.2 Species of Concern for Project Area

Table 2-1 lists those species considered by the State of California as Class A and Class B noxious weeds (CDFA 2010). Species on the federal list of noxious weeds (USDA 2011) are also noted in the table. A primary concern is to prevent the introduction of those species on the list from entering or leaving Tulare County (Haines, pers. comm. 2011).

Table 2.1
State of California List of Class A and Class B
Noxious Weed Species and Noxious Weed Seeds

Scientific Name	Common Name
Class A *Eradication, Containment, Rejection, or Other Holding Action at the State or County Level*	
Acaena novae-zelandiae	Biddy-biddy
Acaena pallida	Pale biddy-biddy
Achnatherum brachychaetum	Punagrass
Alhagi maurorum	Camelthorn
Alternanthera philoxeroides	Alligator weed
Arctotheca calendula	Capeweed
Carduus acanthoides	Plumeless thistle
Carduus nutans	Musk thistle
Carthamus leucocaulos	Whitestem distaff thistle
Centaurea diffusa	Diffuse knapweed
Centaurea iberica	Iberian star thistle
Centaurea maculosa	Spotted knapweed
Centaurea squarrosa	Squarrose knapweed
Chondrilla juncea	Skeleton weed
Cirsium ochrocentrum	Yellowspine thistle
Cirsium undulatum	Wavyleaf thistle
Crupina vulgaris	Bearded creeper
Cucumis melo var. *dudaim*	Dudaim melon
Cuscuta reflexa	Giant dodder
Euphorbia esula	Leafy spurge
Euphorbia serrata	Serrate spurge
Halimodendron halodendron	Russian saltreee
Halogeton glomeratus	Halogeton
Helianthus ciliaris	Blueweed
Heteropogon contortus	Tanglehead
*Hydrilla verticillata**	Hydrilla
Linaria genistifolia ssp. *dalmatica*	Dalmatian toadflax
Onopordum acanthium	Scotch thistle

Table 2.1
State of California List of Class A and Class B
Noxious Weed Species and Noxious Weed Seeds

Scientific Name	Common Name
Onopordum tauricum	Taurian thistle
Onopordum illyricum	Illyrian thistle
Orobanche cooperi	Cooper's broom rape
Orobanche ramosa	Branched broom rape
Peganum harmala	Harmel
Physalis longifolia	Long-leaf ground cherry
Prosopis strombulifera	Creeping mesquite
Salsola vermiculata	Wormleaf salsola
Salvia virgata	Southern meadow sage
Scolymus hispanicus	Golden thistle
Solanum cardiophyllum	Heartleaf nightshade
Solanum dimidiatum	Torrey's nightshade
Sonchus arvensis	Perennial sowthistle
Sphaerophysa salsula	Austrian peaweed
Striga asiatica	Witchweed
Tagetes minuta	Wild marigold
Zygophyllum fabago	Syrian beancaper
Class B *Eradication, Containment, Control or Other Holding Action at the Discretion of the Commission*	
Acacia paradoxa	Kangaroothorn
Acroptilon repens	Russian knapweed
Aegilops ovata	Ovate goatgrass
Aegilops triuncialis	Barb goatgrass
Aeschynomene rudis	*Rough jointvetch*
Allium paniculatum	Panicled onion
Allium vineale	Wild garlic
Ambrosia trifida	Giant ragweed
Araujia sericifera	bladderflower
Cardaria chalepensis	Lens-podded hoarycress
Cardaria draba	Heart-podded hoarycress
Candara pubescens	Globe-podded hoarycress
Carthamus baeticus	Smooth distaff thistle
Carthamus lanatus	Woolly distaff thistle
Centaurea calcitrapa	Purple star thistle
Centaurea sulphurea	Sicilian thistle
Chorispora tenella	Purple mustard
Cirsium arvense	Canada thistle

Table 2.1
State of California List of Class A and Class B
Noxious Weed Species and Noxious Weed Seeds

Scientific Name	Common Name
Coronopus squamatus	Swinecress
Cucumis myriocarpus	Paddy melon
Cynara cardunculus	Artichoke thistle
Cyperus esculentus	Yellow nutsedge
Cyperus rotundus	Purple nutsedge
Elytrigia repens	quackgrass
Euphorbia oblongata	Oblong spurge
Gaura coccinea	Scarlet gaura
Gaura drummondii	Drummond's gaura
Gaura sinuata	Waxy-leaved gaura
Gypsophila paniculatum	Baby's breath
Imperata brevifolia	Satintail
Isatis tinctoria	Dyers woad
Lepidium latifolium	Perennial peppercress
Lythrum salicaria	Purple loosestrife
Muhlenbergia schreberi	Nimblewill
Nothoscordum inodorum	False garlic
Nymphaea mexicana	Banana waterlily
Oryza rufipogon	Perennial wild red rice
Panicum antidotale	Blue panicgrass
Physalis viscosa	Grape groundcherry
Polygonum cuspidatum	Japanese knotweed
Polygonum polystachyum	Himalayan knotweed
Polygonum sachalinense	Giant knotweed
Rorippa austriaca	Austrian field cress
Salvia aethiopis	Mediterranean sage
Senecio jacobaea	Tansy ragwort
Senecio squalidus	Oxford ragwort
Setaria faberi	Giant foxtail
Solanum carolinense	Carolina horsenettle
Solanum elaeagnifolium	White horsenettle
Solanum lanceolatum	Lanceleaf nightshade
Solanum marginatum	White-margined nightshade
Symphytum asperum	Rough comfrey
Ulex europaeus	Gorse
Viscum album	European mistletoe

Source: CDFA 2010
*Listed on the Federal Noxious Weed List (USDA 2011)

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3.0 PRECONSTRUCTION ACTIVITIES

The preconstruction activities include preconstruction surveys, location mapping, determination of high priority weed areas, and flagging for avoidance and/or control. During the preconstruction survey phase, prevention and control measures described in this Noxious Weed and Invasive Plant Control Plan will be implemented in consultation with the County of Tulare. Control measures will vary depending on site-specific parameters, including species, land ownership, and habitat type.

The biological monitors will conduct the preconstruction surveys, including identification of Class A and B noxious weeds and invasive plants. The monitors will also be responsible for mapping and flagging the populations of Class A and B noxious weeds and invasive plants that require control or avoidance. SCE or an approved SCE contractor will be responsible for providing licensed personnel who will apply herbicides and physically remove plant populations if required.

3.1 Preconstruction Survey

Preconstruction botanical surveys will be conducted in the ROW in the spring prior to commencement of construction. The botanical survey will identify and map the locations of Class A and B noxious weed and invasive plant species within all project component areas for the purpose of developing appropriate prevention, containment, suppression, and control activities contained within this plan. In the event that the spring surveys cannot be conducted, the Tulare County Agricultural Commissioner will be consulted to determine if there is any known presence of Class A or Class B noxious weeds.

Weed infestations for avoidance or control within the ROW will be identified and discussed with the County of Tulare to determine treatment, if required. These species will be flagged based on the results of preconstruction clearance surveys and communication with the County. The focus of the preconstruction clearance surveys will be limited to the ROW, including structure locations, temporary disturbance areas, and access roads.

Areas with targeted noxious weeds or invasive plants present will be identified for management purposes. Each discrete infestation will be identified by species, documented, and mapped.

3.2 Mapping of Species

During the preconstruction surveys, locations of Class A and B noxious and invasive species will be mapped using the Global Positioning System (GPS). This information will be downloaded to

the project's geographic information system (GIS) database. Each polygon or point data will include species name, extent, and current status of population. In addition to flagging, the GPS coordinates can be used to identify the location of these species.

3.3 Preconstruction Weed Control

Methods for preventing the spread of discrete weed populations will be accomplished through application of the following strategies, depending on the location and extent of infestation:

- Avoidable – Discrete infestations in the ROW area where avoidance is practical. This "Flag and Avoid" prevention method will require construction contractors and all visitors on site to avoid driving within flagged areas.
- Avoidable but Selected for Control – Discrete infestations in the ROW where avoidance is not practical, such as an infestation of noxious weeds not found in high numbers within the region but found on the project site. In consultation with the County of Tulare, these species may be controlled.
- Unavoidable – Discrete infestations in the disturbance areas where avoidance is not practical. These populations will be controlled to the extent feasible. "Control and Eradicate" requires species-specific methods. If avoidance is infeasible in the demarcated zone, the plants may be removed via acceptable mechanical, biological, or chemical methods. These methods will be determined in consultation with the land owner, the County of Tulare, and the U.S. Fish and Wildlife Service (USFWS)/California Department of Fish and Game (CDFG) (where habitat of special status species is involved).

Combination, Discrete Avoidable and Unavoidable – Discrete infestations in the disturbance area where a combination of both avoidable and unavoidable designations are applicable. For instance, a population occurring within the direct work zone but continuing into the remaining ROW where no disturbance will occur will require a two-step approach. First, the area within the direct work zone may be designated Control and Eradicate; and where avoidance is practical and feasible, the remainder of the population will use the Flag and Avoid prevention method.

Three methods of control may be conducted for populations of Class A and/or B noxious weeds and invasive plants. This will include physical removal, chemical control, and biological control. The method used will be determined by the type of plant and the size of the population, as well as consultation with the land owner and Tulare County.

3.3.1 Physical Removal

Physical removal of noxious weeds or invasive plants is employed for localized, discrete, weed control. Typically, physical control methods will uproot, girdle, or cut plants through manual hand-pulling or use of power tools. Several types of physical removal techniques are recommended, including hand-pulling, lever arms, weed-whipping, hoeing, and mowing.

Hand-pulling should be focused on discrete populations of weed species that have a single-root mass. Hand-pulling is especially effective for annual species, during post-emergent stages and/or prior to seed set, when the plants will not break and leave the roots behind. Broken root pieces and other fragments of weedy species are able to resprout and recolonize cleared areas. Hand-pulling is less effective in large areas and with weed species that spread through an underground root system (e.g., saltcedar).

The Weed Wrench™ and Root Jack™ are lever arms with cam devices that secure stems; they are sold in nurseries and may be used to pull out woody shrubs such as tamarisk.

Hoeing and weed-whipping/weed-whacking will be used to control herbaceous weeds in small areas before seed has set. Care must be taken not to damage adjacent native plants. Hoeing and weed-whipping is most effective on small weeds with single root masses. Larger weeds are more likely to regenerate from cut roots. Cut plant material should be bagged and removed to prevent resprout and seed maturation.

These precautions will be taken:

- Cover all loads while removing vegetation using a tarpaulin. Caution must be taken to contain all plant stem and root fragments because they may recolonize cleared areas and can invade new areas if not disposed of properly.
- Avoid contact with established native shrub and grass species.
- Temporarily discontinue weed abatement work in the event of gusty winds or winds in excess of 6 miles per hour.
- Temporarily discontinue weed abatement work in the event of rainfall.

3.3.2 Chemical Control

Herbicide applications are a widely used control method for removing infestations of invasive weed species. Herbicides may be used selectively to control discrete but significant infestations that do not respond to manual and mechanical control methods. Herbicide application will be applied by a licensed applicator and will be applied according to label instructions.

Herbicides are characterized as pre-emergent, post-emergent, selective, and nonselective. The type of herbicide that will be used will be determined in consultation with the land owner and the County of Tulare. When herbicides are used, the intent for control is sufficiently serious to warrant precise mapping for future visits to verify control. A GPS for locating individuals of particularly invasive weeds such as Russian thistle will be included with spraying kits, so that revisits can be made if chemical control is used. However, inadvertent application of herbicide to adjacent native plants must be avoided, which can often be challenging when weeds are interspersed with native cover.

Before application of the herbicide, contractors will be required to obtain any required permits from state and local authorities. Permits may contain additional terms and conditions that go beyond the scope of this plan. Only a State of California and federally certified contractor will be permitted to perform herbicide applications. All herbicides will be applied in accordance with applicable laws, regulations, and permit stipulations. Only herbicides and adjuvants approved by the Environmental Protection Agency (E.P.A.) and State of California will be used within or adjacent to the project site. Herbicides will be applied according to label instruction.

3.3.3 Biological Control

Biological control methods (use of organisms such as insects to attack plants) are not anticipated at this time. Long-term control of undesirable plants may be effective through biological control methods; however, due to the relatively short duration of the project, biological controls are neither an applicable nor a feasible control method. The California Department of Agriculture and Tulare County have been conducting biological control research on several species and may wish to expand the work to the project area.

4.0 CONSTRUCTION ACTIVITIES

This section details the strategic methods for weed control through prevention measures, including, worker training, washing of construction equipment, reduction of disturbance areas, and monitoring and control measures. When prevention measures are deemed insufficient, control measures, including physical removal and chemical control of weedy species, may be employed as required. The following measures will be implemented to prevent noxious weed invasion, establishment, and expansion:

- Mandatory noxious weed awareness training
- Washing protocols for construction equipment
- Whenever feasible, minimize ground disturbance by using the least intrusive construction and operation techniques practicable
- Monitor and implement control measures to ensure early detection and eradication for weed invasions, as required by Tulare County

4.1 Monitoring and Reporting Requirements

Areas where weed control measures are required will be identified by a qualified biologist prior to construction. A biological monitor will be present during site-clearing where weed control is required during construction activities. Biological monitors will be responsible for inspecting all construction areas, identifying the presence of noxious weeds, and inspecting any SCE installed wash stations for weed seed removal and proper maintenance.

The biological monitor will be responsible for prescribing management activities consistent with this plan. Monitoring will occur during construction activities and will consist of walking or driving slowly over construction areas to identify areas of concern.

Areas where weed control measures have been implemented will be targeted for ongoing monitoring during the construction phase to ensure that controls are effective.

4.2 Mandatory Noxious Weed Awareness Training

Noxious weed management will be incorporated as part of the mandatory Worker Environmental Awareness Program (WEAP) training for all construction contractors, construction personnel, or any other personnel entering the site during construction.

Training will include discussion of mitigation measures as applicable to weed control, the importance of compliance, and penalties for noncompliance. The training will focus on implementation measures for prevention, containment, and suppression. A training module or presentation will introduce the project-targeted weed species and discuss the impacts of noxious weeds on agriculture, livestock, wildlife, native vegetation, and fire activity.

4.3 Equipment Cleaning Protocol

All construction equipment, including excavators, cranes, graders, dump trucks and dozers, coming from outside of Tulare County must be cleaned prior to commencement of work on the project ROW. This will not include supply vehicles, concrete trucks, maintenance vehicles, and worker equipment such as hand tools.

Cleaning will involve the removal of soil and any vegetative material from the equipment with the uses of high pressure washers. This washing can be conducted at a commercial washing facility or at wash stations established by SCE for the project. Construction specifications will require that equipment be washed prior to being delivered and used at Cross Valley Loop construction sites. Construction equipment will be visually inspected prior to commencement of work. In the event that the equipment has not been cleaned or fully cleaned, further cleaning will be conducted at the project's wash station.

Wash stations will use high-pressure water jets or air compressors. All external parts of equipment will be washed, with emphasis placed on tires and undercarriages including axles, frames, cross members, motor mounts, running boards, and front bumper/brush guard assemblies. Removal of mud and debris from heavy equipment will be required.

Wash stations established by SCE will be located at specified sites along the project. Wash stations will be installed to remove, capture, and dispose of weed propagules from equipment. Any weeds found will be bagged and deposited in a dumpster for disposal at an approved landfill. If commercial wash stations are utilized, construction equipment will be inspected by a qualified monitor prior to entering the job site.

A log will be kept for each piece of construction equipment, recording the wash location, date and time, wash method, and equipment type and serial number. The crewmember that washed the vehicle will sign the log. The monitor will oversee compliance with washing requirements.

At SCE established wash stations, accumulated wash sediment and debris will be collected weekly, or as needed, and placed in a sealed container (such as a vacuum truck) for disposal in an approved sanitary sewer or landfill. Silt fencing, weed-free certified hay bales, or other means

of trapping wash water, sediment, and weed propagules will be installed around the wash station perimeter. The wash stations will be constructed with either a concrete wash pad or a compacted gravel pad.

Additionally, all construction equipment must be cleaned prior to leaving Tulare County. The requirements for cleaning equipment after completion of use will be provided in the construction specifications. Cleaning may either occur at an SCE established wash station or at a commercial washing facility. Documentation demonstrating compliance prior to leaving Tulare County will be required and tracked.

4.4 Use of Weed-free Materials

Certified weed-free soils, gravels, sand, vegetation seeds, mulch, and hay/straw should be brought on site, when feasible.

4.5 Monitoring for New Infestations

The biological monitor shall monitor construction areas for any new infestations of Class A and B noxious weeds or invasive plants during the construction process. Any new infestations shall be controlled as described in Section 3.3 of this document if requested by the County of Tulare.

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5.0 POST-CONSTRUCTION ACTIVITIES

5.1 Post-Construction Monitoring

Post-construction monitoring will be conducted in the disturbance areas after completion of work to identify any known Class A and/or B infestation/control areas based on consultations with the County of Tulare. Post-construction monitoring will not be considered part of any habitat restoration effort. The post-construction monitoring of weed abatement areas includes those areas treated for weeds within the temporary disturbance zones of the project.

- Post-construction monitoring will be required for areas determined critical by Tulare County. Spot checks will be required for areas where control methods were implemented during construction. No monitoring is required outside of the project's disturbance footprint.

Post-construction weed control, if necessary, will not constitute a restoration measure. Instead, it is a construction phase approach, and post-construction monitoring will assess the success of the control efforts during construction.

5.2 Post-Construction Abatement

Abatement of new outbreaks of noxious weeds or invasive plants as well as reestablishment of previously treated areas will be abated as described in Section 3.3 and in consultation with Tulare County.

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6.0 REPORTING

6.1 Preconstruction Monitoring and Vegetation Mapping

A preconstruction report will be prepared for the project. This report will include a description of methods including target species (Class A and B noxious weeds), location of noxious weeds or invasive plants encountered, mapping of the extent of the infestation, and recommendations for control.

6.2 Construction Monitoring and Wash Station Logs

Records of SCE wash station activities will be kept by the project team. Records will also be provided for construction equipment cleaned at off-site locations.

6.3 Post-Construction Monitoring Reports

Post-construction monitoring reports will be submitted to Tulare County at the completion of the project. The post-construction monitoring report will specifically document the following information as relevant during the reporting period:

- An executive summary discussing the monitoring results and a summary regarding the progress toward meeting the noxious weed control objectives
- Description of supplemental or remedial/corrective actions (e.g., additional weeding or herbicide application)

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7.0 SCHEDULE

The project is anticipated to proceed as follows (this schedule is subject to changes):

- Construction of the new 220 kV line and within the St John's River is anticipated to begin in August, 2013; and
- The project is scheduled to be completed by March, 2014.

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8.0 REFERENCES

3 CCR 4500. Subchapter 6, Noxious Weed Species.

7 CFR 360.100–360.600. Noxious Weed Regulations, Section 360.200, Designation of noxious weeds.

64 FR 6183. Executive Order 13112 of February 3, 1999: "Invasive Species." Presidential Documents. February 8, 1999.

7 U.S.C. 7701–7751. Title IV–Plant Protection Act.

CDFA (California Department of Food and Agriculture). 2010. "Noxious Weed Information Project: Program Details." Accessed March 19, 2011. http://www.cdfa.ca.gov/phpps/ipc/noxweedinfo/noxweedinfo_hp.htm.

ESA (Environmental Science Associates) 2010. *Final Environmental Impact Report.* Southern California Edison's San Joaquin Cross Valley Loop 220 kV Transmission Line Project. Prepared for California Public Utilities Commission.

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USDA (U.S. Department of Agriculture). 2011. *National Invasive Species Information Center.* Accessed March 28, 2011. http://www.invasivespeciesinfo.gov/.